



University of Fort Hare
Together in Excellence

University of Fort Hare

RESEARCH REPORT

Towards a Decade of Renewal

2023



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Foreword

Professor Sakhela Buhlungu
Vice-Chancellor and Principal
University of Fort Hare

Research and innovation are core functions of the University of Fort Hare (UFH), and one of its strategic goals is to strengthen its research profile to become a research-focused institution. As the research and scholarship environment is increasingly becoming more competitive, it is critical not only to focus on conducting research, but also to publish in high impact factor journals and to disseminate research findings widely to both expert and non-expert audiences. The UFH annual research report is one such channel/mechanism that the university uses to showcase and disseminate a sample of its research activities.

The University also showcases its research during the UFH Research Week of Excellence (RWE), which is held annually in the fourth quarter. The theme for the 2023 RWE is 'Becoming a research-focused university', which is aligned with the UFH 2022–2026 Strategic Plan. The RWE provides a platform for UFH researchers, including academic staff, postdoctoral fellows, postgraduate students, and other researchers affiliated with the university, to present their research activities and research findings. In doing this, the RWE enables dissemination of research findings and strengthening of conference presentation skills.

As part of the implementation of its 2022–2026 Strategic Plan, UFH embarked on a process to establish revised or new Research Niche Areas (RNAs) to ensure alignment with its strategic plan. The RNAs are areas of research strength that have significant potential to be developed into areas of research excellence. Five RNAs were launched on 14th September 2023 and will go a long way in enhancing Fort Hare's research and innovation profile through various trans- and/or inter-disciplinary research activities that leverage on existing research strengths.

The RNAs established by the university are (i) Renewable Energy; (ii) Sustainable Agriculture, Water Usage and Climate Change; (iii) Infectious Diseases and Medicinal Plants; (iv) Research in Inclusion and Township Economies; and (v) African Liberation Heritage in Citizenship and Society. Through these niche areas, research addressing societal problems, especially those that negatively affect socio-economic development of disadvantaged communities, will be conducted.

Introduction

Dr Nthabi Taole-Mjimba

Deputy Vice-Chancellor:
Research, Partnerships & Innovation
University of Fort Hare

The University of Fort Hare's Research Report for 2023 gives a glimpse of the excellent research activities conducted in various fields. The Report showcases research articles published by researchers in fields including Education, the Health Sciences, Law, Management and Commerce, Science and Agriculture, and the Social Sciences and Humanities.

In order to recognise and promote excellence in research and innovation, the Report also provides details of the Vice Chancellor's Research Excellence Awards for newly NRF-rated researchers, emerging researchers, established researchers, innovative research and the best book published in the last two years. Since the Vice Chancellor's Book award was introduced for the first time in 2023, all inaugural nominees for the award were honoured with certificates to recognise the hard work involved in publishing scholarly books.

The Report also covers the newly established UFH Research Niche Areas (RNAs) noted by the Vice-Chancellor in the Foreword to this Report. The RNAs were launched at a high-profile event attended by members of the Fort Hare community including academic researchers, students, administrative staff, SRC representatives, union representatives, and members of various governance structures including Council, Senate, the Management Executive Committee, and the Extended Management Team. The RNA launch was also graced with the

presence of external stakeholders including the National Research Foundation, Beyond Zero (a Non-Governmental Organisation), the Desmond Tutu Foundation, and the Eastern Cape Department of Rural Development and Agrarian Reform. The established RNAs will enhance the University's research and innovation profile regionally, nationally, and internationally, thus fulfilling one of its strategic goals. The Report ends with a list of research outputs for 2022, which include journal articles, book chapters, books, and conference papers.

Enjoy reading the UFH Research Report for 2023.



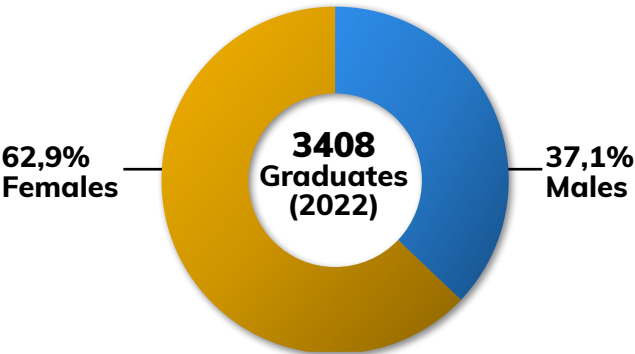
University of Fort Hare at a glance



41
NRF-RATED
RESEARCHERS

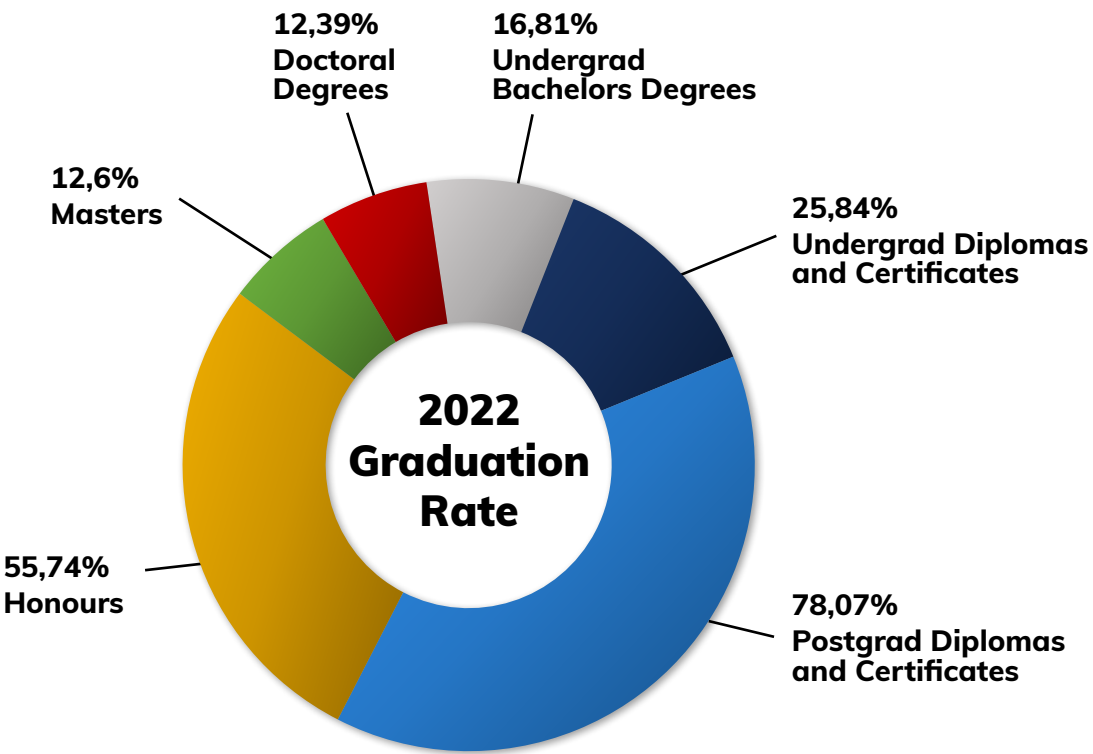
FACULTY	B3	C1	C2	C3	Y1	Y2	TOTAL
Law		1		1			2
Management & Commerce			1	2		2	5
Science & Agriculture		2	8	7	1	8	26
Social Sciences & Humanities	1		4	1		2	8
TOTAL	1	3	13	11	1	12	41

47%
ACADEMIC STAFF
WITH PhD DEGREES



Research Niche Areas

- 1
- 2
- 3
- 4
- 5



Research Articles

**Faculty of
Health Sciences**



Capacity building for HIV/AIDS prevention and control in the Eastern Cape:

The work of Fort Hare's
HIV/AIDS Research Group



Dr Hlengiwe Gwebu,
Department of Public Health



Helen Bunt,
Department of Nursing

At the 2023 South African AIDS conference, *Act, Connect, and End the Epidemic*, delegates reflected on ongoing efforts to combat the global HIV/AIDS epidemic. As the number of people infected with HIV globally is estimated to be 38.4 million, it is clear the end of the epidemic is not yet in sight.

South Africa bears a significant burden of this epidemic, and within the country, the Eastern Cape province has particularly high rates of HIV and AIDS among adults and young people

compared to the national average. Recent data shows that approximately 12% of adults aged 15–49 in the Eastern Cape are living with HIV and that the prevalence among young people aged 15–24 is around 15%. These alarming figures emphasise the urgent need for targeted interventions and effective strategies to curb the spread of the virus.

According to Dr Hlengiwe Gwebu and Mrs Helen Bunt of the HIV/AIDS Research (HAR) Group based in the University of Fort Hare's Faculty of

Health Sciences, poverty and socio-economic inequalities have long been identified as associated with the transmission of HIV. Studies conducted in the Eastern Cape have shown that individuals from lower socio-economic backgrounds are more likely to engage in risky sexual behaviours and have limited access to HIV prevention services. Gender inequalities in the region also contribute to the transmission of HIV, particularly among young women. Gender-based violence and transactional sex are prevalent, placing young women at

a higher risk of infection and hindering their access to prevention and treatment services. Stigma and discrimination towards people living with HIV further compound the challenges, acting as barriers to testing, treatment adherence, and care-seeking behaviour.

To address the HIV epidemic in the Eastern Cape, the Provincial Department of Health has implemented various interventions including the expansion of HIV testing services, the integration of HIV and TB services, and the promotion of sexual reproductive health rights. Community-based initiatives, such as the DREAMS (Determined, Resilient, Empowered, AIDS-free, Mentored and Safe) programme, have also been established to target high-risk populations, including adolescent girls and young women, to reduce new infections. These interventions are guided by evidence-based policies, such as the provincial HIV and AIDS strategic plan and national guidelines on HIV treatment. However, the reach and impact of these interventions have been limited due to implementation challenges and systemic barriers, including inadequate funding, insufficient human resources, and weak healthcare infrastructure.

The HIV/AIDS Research group led by Dr. Hlengiwe Gwebu and Mrs. Helen Bunt, which consists primarily of researchers from the fields of nursing and public health, has taken an active role in community-based HIV prevention research projects and the evaluation of HIV training programmes. The group collaborates with leaders of prevention programmes in the Eastern Cape that prioritise comprehensive prevention and control strategies, including sex education and HIV testing services targeting high-risk populations. They also plan to implement community-based interventions, such as peer-led support groups and awareness campaigns, to reduce stigma and discrimination while improving HIV knowledge and behavioural outcomes.

The HIV/AIDS Research Group has formed partnerships and signed Memoranda of Understanding (MOUs) with various organisations to enrich their research capacity and achieve their goals. One such collaboration is with the Adolescent Accelerators Research Hub (AARHub) at the Centre

for Social Science Research at the University of Cape Town. The AARHub focuses on promoting evidence-based policies and programmes to improve the lives of African youth, with research areas including risks and vulnerabilities among adolescents living with and affected by HIV/AIDS, healthy parenting practices, peer support, and access to health services. The Fort Hare group also partners with local non-governmental organisations (NGOs) and health foundations in the Eastern Cape including Beyond Zero, an NGO that provides health services, including HIV, TB, and STI prevention, treatment, care, and support programmes, to vulnerable communities. The Desmond Tutu Health Foundation is another partner collaborating with communities at high risk of infection to lessen the impact of the HIV epidemic in South Africa.

The HIV/AIDS Research Group is also collaborating with the Desmond Tutu Health Foundation, on a doctoral training programme, and with Fort Hare's Teaching and Learning Centre, on a Scholarship of Teaching and Learning Grant funded by the Department of Higher Education and Training. The doctoral training programme is fully funded and involves coursework and research on HIV/AIDS in the Eastern Cape. Work with the Teaching and Learning Centre involves an evaluative study of the Postgraduate Diploma (PGDip) in the Clinical Management of HIV/AIDS using feedback from students, lecturers, and other stakeholders to inform a review of the curriculum and, potentially, to increase research output through student projects and collaboration with partners.

By engaging in community-based interventions, research partnerships, and programme evaluation, the HIV/AIDS Research Group provides evidence of the University of Fort Hare's commitment to the people of the province of the Eastern Cape, seen in so much of the work produced by its researchers. Its work on HIV/ADS not only contributes to the prevention and alleviation of suffering in a province already afflicted by poverty and other socio-economic ills but also realises the University's mission of contributing to the 'advancement of knowledge that is socially and contextually relevant' and its vision of being a 'distinctive African university'.

IN SEARCH OF more positive outcomes for pregnant women and their babies:

The work of the Maternal and
Child Health Research Group



Dr Funanani Mashau,
Department of Public Health

Adverse outcomes in a pregnancy are a public health concern, especially in developing countries. In Sub-Saharan Africa poor outcomes from pregnancy are common, with studies showing that infections such as HIV, syphilis and malaria; poor nutrition; tobacco and alcohol use; and a lack of prenatal care and social support, along with limited knowledge, all affect the outcomes of a pregnancy. Poor outcomes include premature births, low birth weights, developmental delays, and long-term health problems in children, and the deaths of mothers and babies. Of all these negative outcomes, the greatest risk is of premature birth.

In South Africa, the prevalence of these outcomes varies according to province and whether the pregnancy occurs in a rural or urban community because of inequality in primary health care services. The Eastern Cape, Northwest, Limpopo, and Mpumalanga provinces are mainly rural areas and are characterised by growing inequality related to maternal health when compared to more urban provinces.

Worldwide, adolescent girls face challenges that include sexual coercion, violence at the hands of intimate partners, and a lack of education. As a result, many are ill prepared to deal with pregnancy and its complications. According to the WHO, girls as young as 10 give birth in Sub-Saharan Africa. In South Africa, a particular concern is the fact that one in four teenaged girls become pregnant.

Against this backdrop, the Maternal and Child Health Research Group in the University of Fort Hare's Faculty of Health Sciences aims to investigate the risk factors, and their impact on the outcomes of pregnancy and the health of newborn

babies. Group member Dr Funanani Mashau is a public health specialist interested in risk factors associated with adverse outcomes in pregnancy, who draws on epidemiological study designs in his research. His previous work has investigated the effects of drinking water quality on the outcomes of pregnancy using biomarkers. Other members of the group are Dr Nonceba Vellem, Mrs Ntombana Rala and Mrs Zukiswa Dasheka of the Department of Nursing.

All members of the Research Group have common goals. Current research focuses on the investigation of adverse pregnancy outcomes amongst young mothers. The Group also develops and runs innovative programmes to support mothers throughout their pregnancies. Research has been made possible thanks to seed funding awarded to Dr Mashau by the University of Fort Hare's Goven Mbeki Research Development Centre and by a South African Medical Research Council grant awarded to group colleague, Dr Vellem Nonceba.

The Maternal and Child Health Research Group provides yet another example of Fort Hare researchers focusing their attention on pressing local problems which also impact at global levels. In doing so, the Group contributes to the University's goal of producing socially relevant research.

The foundations of good health: researching risk factors for non-communicable diseases among adolescents in the Eastern Cape



Professor Maya van Gent,
Department of Human
Movement Science



Professor Leon van Niekerk,
Department of Psychology

The World Health Organisation (WHO) predicts that, by 2030, (NCDs) will have become the largest single cause of death on the African continent. In 2012, approximately 43% of all deaths in South Africa were related to NCDs.

In response to this grim forecast, in 2013, the WHO developed the *Global Action Plan for the Prevention and Control of NCDs, 2013–2020*, which outlined key objectives in a plan to reduce deaths from NCDs at a global level. In 2021, the WHO continued

to demonstrate its commitment to reducing mortality from NCDs by releasing an *Implementation Roadmap 2023–2030* for the *Global Action Plan*. The roadmap identifies a number of strategies including those aimed at reducing physical inactivity and the prevalence of mental health problems. The identification of mental health problems was particularly important given the Covid-19 pandemic and its impact on psychological well-being.

The release of the *Implementation*

Roadmap immediately motivated Professor Maya van Gent and Professor Leon van Niekerk of the Faculty of Health Sciences to apply for a South African Medical Research Council (SAMRC) Capacity Grant for a project entitled 'An Intervention to combat the physical, physiological and psychological risk factors associated with non-communicable diseases among adolescents in the Eastern Cape, South Africa'. The study builds on previous research conducted by Professors van Niekerk and van Gent on the mental health of staff and

students at the University of Fort Hare during the pandemic.

The SAMRC research project targets adolescents for two main reasons. Firstly, the global adolescent population (aged between 10 and 19) is around 1.2 billion while in South Africa it is estimated to be 9 950 100, of whom approximately 1 990 020 (20.5%) are resident in the Eastern Cape. Secondly, adolescence is often characterised as a time of independence, in which new relationships are forged, social skills are developed, and, most significantly, lifelong behavioural habits take hold. A focus on adolescents is thus important in reducing the mortality from NCDs in South Africa by 2030 since healthy behaviours established at this stage are likely to be continued in adulthood.

Most studies of NCDs among South African adolescents tend to be confined to single health problems. The SAMRC project adopts a multidisciplinary approach that combines the assessment of physical components of health (body composition, blood pressure, resting blood glucose, cholesterol, physical activity levels, and nutritional intake) alongside assessment of psychological components (mental health, mental well-being, alcohol abuse, smoking cigarettes, body image and stress) in diverse settings in the Eastern Cape.

The SAMRC project started in 2021 with a situational analysis of 226 15–18-year-old adolescents from the Buffalo City Metropolitan Municipal area and the Amatole district. In 2022 the study introduced physical activity and psycho-education intervention strategies with randomly selected adolescents at risk for NCDs. In 2023, a post-intervention assessment was done to establish the effect of the intervention strategies. In 2024, a retest assessment to establish the sustainability of these intervention strategies will be completed.

Key to SAMRC funding of the project, was the capacity building of future researchers. Two staff members in the Faculty of Health Sciences, Ms Nokwanda Bokolo from the Department of Public

Health and Mr Thabo Xoxo of the Department of Human Movement Science are using data generated by the project in their doctoral studies. In addition, three Master's level students, Ms Avela Mathe, Ms Sisanda Mvula and Ms Zizipho Siduli from the Human Movement Science Department have used data from the situational analysis as a basis for their dissertations. Honours and Master's students from the Department of Human Movement Science were also involved with data collection, gaining valuable field work experience in the process.

Preliminary data analyses show that approximately a third of the adolescents studied presented at least one behavioural risk factor (38%) and one metabolic risk factor (32.7%). Another concerning aspect was that 56% of all the adolescents presented at least with one psychological risk factor. One to three risk factors associated with NCDs were identified amongst 70.6% of all the adolescents in the study.

Further data analyses revealed a significant relationship between physical exercise and well-being with a significant negative correlation between the number of risk factors and physical activity. The adolescents at risk for NCDs were significantly less active. In addition, significantly more female adolescents smoked, drank alcohol or were physically inactive than their male counterparts. A logistical regression indicated that alcohol use and physical inactivity were significant predictors of risk for NCDs among adolescents.

No association was found between physical activity and socio-economic status or between fruit and vegetable intake and socioeconomic status. However, a strong significant association was found between sugar intake and socio-economic status among adolescents at risk for NCDs.

This socially relevant research from UFH researchers makes an important contribution to achieving the goals of the *Global Action Plan* and the development of strategies to ensure that young people in the Eastern Cape enjoy a healthier future.

Sound policy, poor implementation:

The impact of inclusive education policies on the career education of D/deaf learners in the Eastern Cape



Dr Unati Stemela-Zali,
Rehabilitative Studies

Harsha Kathard

**Maximus Monaheng
Sefotho**

A major purpose of education is to prepare learners for the world of work. The provision of high-quality career information and career guidance and support is therefore critically important. This applies to all learners, including those who are D/deaf. However, in spite of the existence of national policies supporting inclusive education, the school system is not always supportive of people with impediments learning about the careers that are open to them, and being guided towards those that appeal.

Case studies of the implementation of inclusive education policies in Botswana and South Africa identify a number of challenges, some of which are associated with unreasonably high expectations of what the policies themselves can achieve. Another problem relates to the fact that policy developed at a national level needs to be adapted to different contexts at provincial or regional levels. As this happens, it is difficult to ensure that the policy is implemented consistently. Yet other problems are due to a lack of collaboration as policies are developed, and a failure to consult those who will be responsible for implementation in the future. In addition, policy makers are often attracted by the prospect of short-term results since the nature of their political appointments often means that they will have moved on before the policies they introduce have to be implemented.

Although South Africa has a strong policy framework supporting inclusive education, there is a scarcity of research exploring implementation particularly in relation to D/deaf learners, especially those in the Eastern Cape. More specifically, a huge gap exists in research exploring the exclusion of the D/deaf from the formal labour market after schooling.

The opportunity to contribute to filling this gap was seized by Dr Unati Stemela-Zali, of the Department of Rehabilitation Science, in a doctoral study supervised by Professor Harsha Kathard of the University of Cape Town and Professor Monaheng Sefotho of the University of Johannesburg.

Dr Stemela-Zali used a qualitative approach and multiple methods to collect her data. Phase one of her study focused on a review of policy documents. Phase two drew on focus group discussions with career education teachers and in-depth interviews with officials from the Special Needs in Education Unit in the Department of Basic Education.

The review of the policies showed that the gap between policy intentions and their implementation in practice was the main factor impacting on D/deaf learners in the Eastern Cape. The policies themselves were comprehensive but their implementation was a problem.

Interviews with officials from the Department of Basic Education showed that they were aware of the policies but were unaware of how they were implemented 'on the ground'. This indicated a lack of monitoring. Interviews with teachers revealed a lack of capacity caused by inadequate training to inform learners and their caregivers about career opportunities. Teachers also pointed out that in the current curriculum, Life Orientation is the only subject that includes any information on careers. Teachers viewed this information as inadequate.

Dr Stemela-Zali's research also identified some career paths made available by organisations for the D/deaf and some Sector Education Training Authorities (SETAs) but these were not linked to the education system in any formal way.

Dr Stemela-Zali is now following the paths laid by many other researchers from the University of Fort Hare in ensuring that her research has social impact as a result of her engagement in a collaborative project to support the implementation of inclusive education policies. Other members of the project team include Professors Kathard and Sefotho, officials from the Special Needs Unit of the Buffalo City Department of Basic Education; Professor Lauren Lindstrom from the University of California; and Professor Nozuko Duko from the Faculty of Education at Fort Hare.



Assigning a rightful place to black sportspeople in the history of sport in South Africa

Dr Philani Nongogo,
Faculty of Health Sciences



In the last few decades, Kinesiology, or 'Sport Studies' as it is also known more popularly, has grown tremendously as a scientific discipline. Evidence of this growth is seen in the other terms used for work in this knowledge area including 'Biokinetics', 'Human Kinetics', 'Olympic Studies', 'Sports Management' and the 'Sociology (or Psychology or History) of Sport'. Kinesiology is no longer only about blood, saliva, urine sample analysis and or building muscles for performance enhancement. Rather, socio-historical, socio-cultural, socio-economic, and socio-political aspects are all key in developing broader understandings of sport.

Across the world, interest in the relationship between sport and society is growing. Of special importance are studies that look at the way social, economic and political dispensations, at different times and in different places, have affected how opportunities to engage in sport, have been offered by those in positions of power and authority. There is also enormous interest in the way different sports have been played and enjoyed by fans. The aim in gaining insights from history is to make links with what is happening currently and to look into the future.

The study of the way sport history has been interpreted over the years in South Africa is generally limited and this is especially the case for work on black people's lived experiences of sport. For example, rugby has been played by Afrikans since it was introduced to the continent. In spite of this, there is only a very limited history of the involvement of Afrikans in the game from its introduction in the late 19th century until 1992, the year rugby players and sport leaders of different cultural and ethnic groups came together to form

the first non-racial rugby body in South Africa. This significant gap in history is now being addressed thanks to the efforts of Dr Philani Nongogo, of the Faculty of Health Sciences, who is co-authoring a book, now in its final stages of production, with the running title *Umbhoxo: Making Rugby an Afrikan Game*.

Dr Nongogo's main research area is sport in society, specifically the social history of black people's lived experiences of rugby and cricket, the history of the Non-Racial Sports Movement and the role of the anti-apartheid movement in the deracialisation of sports in South Africa. Dr Nongogo also researches topics related to his interest in Olympic Studies.

A lot of Dr Nongogo's work involves the use of archival material though he also draws on questionnaires and interviews to explore, in depth, the way black people have experienced sport. With Stephanie Victor, a curator at the Amathole Museum in King William's Town, he is now working on a paper on the way black people in the, then, Cape Colony, played and enjoyed cricket with a particular focus on what is now the Eastern Cape.

Dr Nongogo's work not only provides a knowledge base to inform the teaching of Kinesiology and the work of other researchers but, importantly, assigns a rightful place to black South Africans in the history of sport in their country. In doing this, his work not only fills a gap left open by apartheid but draws on the standing of the University of Fort Hare as a beacon of intellectual light in some very dark times.



Research Articles

**Faculty of
Law**

Detonating the Air:

International Humanitarian Law and thermobaric weapons



Professor Arthur van Coller,
Faculty of Law

For centuries, human beings have been inventing ever more sophisticated weapons of war. Thermobaric weapons, commonly known as ‘aerosol bombs’ or ‘vacuum bombs’, now feature in armouries across the world. These weapons usually contain a high-power core of explosive partially composed of a metallic fuel. A thermobaric explosion begins when this core is detonated and distributes a cloud of fuel over a target which, now combined with atmospheric oxygen, is then detonated. The result is a series of blast waves with the power to rupture organs and destroy buildings. The harm

inflicted by these horrific weapons on both civilians and military personnel can overwhelm battlefield medical systems.

In an article published in the *International Review of the Red Cross*, Professor Arthur van Coller, of the University of Fort Hare’s Faculty of Law, evaluates the restrictions in weapons law that potentially apply to, or affect the use of, thermobaric weapons. The article was reproduced in part in *Articles of War* by the Lieber Institute at West Point, the US Military Academy.

The basic principle of weapons law prohibits harm that is not essential to achieve a legitimate object of armed conflict. No international instrument directly addresses the legality of the possession or use of thermobaric weapons. Even so, the debate on the legality of the use of thermobaric weapons may indirectly implicate some existing legal instruments. For example, the fuses of some thermobaric weapons are constructed of non-metallic parts that produce fragments that may not be detectable by X-rays. These parts will not in themselves result in their prohibition under Protocol I of the Convention on Conventional Weapons because thermobaric weapons are not primarily intended ‘to injure by fragments which in the human body escape detection by X-rays’.

Thermobaric explosions may cause choking, suffocation and poisoning from processes that cause burns, chemical reactions on or in the human body, and infections due to contamination. However, thermobaric weapons are not primarily designed to asphyxiate or poison. When they occur, these effects are regarded as secondary, or additional, and the 1899 Hague Peace Conference, the 1907 Hague Regulations, and the Geneva Gas Protocol therefore cannot be applied to thermobaric weapons.

The fuel mixtures in thermobaric weapons contain toxic chemicals and chemical agents, which are selected on the basis of their capacity to release heat. Thermobaric explosions may thus create toxic conditions and may incidentally poison personnel. However, thermobaric weapons are not primarily designed to produce harm by poisoning and are thus not prohibited under the Chemical Weapons Convention. Thermobaric weapons may also violate Protocol III to the Convention on Conventional Weapons. Thermobaric weapons are, however, not primarily designed to cause fire or burns, even though these weapons will likely or frequently produce ‘incendiary effects’ that are substantial but are ‘incidental’ or secondary.

These are but some examples of the way existing conventions and protocols are implicated in

the use of thermobaric weapons, identified by Professor van Coller.

The Martens Clause, as codified in AP I, states that ‘civilians and combatants remain under the protection and authority of the principles of international law derived from established custom, from the *principles of humanity* and from the *dictates of public conscience*’. Nonetheless, the principles of humanity and dictates of public conscience will, except in remarkable instances and where general agreement exists, not cause a particular weapon to be unlawful. An intense dislike of a particular weapon by the public may become a significant consideration in the development of weapons law. However, unlike certain previous campaigns, public opinion on the use of thermobaric weapons cannot be regarded as extreme or uncontested. As a result, ‘the dictates of public conscience’ alone have not created enough pressure to delegitimise the use of thermobaric weapons.

Over the years, the application of the rules in International Humanitarian Law has progressively increased the protection of the civilian population. When thermobaric weapons are used, combatants have an obligation to minimise or avoid injury to civilians and avoid the incidental loss of civilian life and damage to civilian objects. The use of thermobaric weapons should thus be avoided in urban or populated areas whenever possible, not least because their ability to inflict harm over a wide area makes it very difficult to reduce their effects on civilians.

Professor van Coller’s analysis in a top legal journal of the potential of International Humanitarian Law to limit or control the use of one of the most horrific forms of weapons yet invented once again shows University of Fort Hare researchers contributing to debates at a high level. For the sake of all those affected by armed conflict, we need to hope that his analysis contributes to the strengthening of existing legal provisions or the development of new ones.

Research Articles

**Faculty of
Management &
Commerce**



Counting the cost of REMOTE WORKING



Professor Willie Chinyamurundi,
Department of Business Management

The Covid-19 pandemic has led to a question that would have been unthinkable a few years ago: 'Do we really need to be in the office all the time?' Professor Willie Chinyamurindi, of the Department of Business Management, answers this question in an article published in the journal *Frontiers in Psychology* in 2022.

The most common response to the challenges posed by the Covid-19 pandemic was remote working. Ironically, although remote working was initially introduced as a means of protecting workers from the spread of infections, over time researchers have become aware that remote working is not always beneficial to health.

Professor Chinyamurindi's latest paper reports on research conducted with 23 female managers working in the South African public service. The focus on employment in the public service links this particular piece of research with his previous work in the same area. In public service, the middle management tier is responsible not only for making decisions but also for formulating actions from them, and this makes research at this level a fruitful area for investigation.

As a result of his research, Professor Chinyamurindi identifies both positive and negative aspects of remote working. The ability to work remotely offered flexibility in that the managers could balance personal and work tasks, giving them some freedom

and autonomy. One human resource manager noted:

During the height of the pandemic, I could spend more time connecting with other facets of my life outside work. I could read more at home. Do some gardening. Even connect more with the world around me. Yes, I got to do some work but I also managed to do things I could not do previously.

The fact that remote working reduced time spent commuting was also noted, as this meant that more time was available for family matters and for exercising and paying attention to personal wellness generally.

Remote working also had the potential to enhance the quality of relationships, thanks to the fact that women were physically present at home, with one participant, an accounting manager reporting,

I think remote working also saved my marriage. My partner and I are appreciative of being in professions where we can work remotely. This assisted both of us to work in the same room at home. Such time was just the bond we needed. Remember, in a week we usually spent half of the week at the office before the pandemic. It was wonderful to work from home not just for the work aspect but also our relationship.

But the research also revealed that remote working posed some challenges. Three main problems emerged. Firstly, despite viewing remote working as a possibility, organisational will did not exist to see it through. At an organisational level, feelings appeared to be mixed and support for this form of working was not uniform. Secondly, for some managers, managing people remotely was not a feasible option. This was largely due to the perception that, to be an effective manager, some form of physical presence was needed. The physical presence factor for these managers served as a form of surveillance, an ability to monitor that work was actually being done. This kind of management approach created levels of suspicion and rendered remote working ineffective. Thirdly, the participants in the study expressed concern around the extension of the working hours. Remote working distorted the boundaries of work and forced employees to be available at any time. This included receiving work-related calls at odd hours. Some employees felt that going to the office protected them from being bothered after work hours, with one participant observing,

The organisational structure within the South Africa public service is still that one of command and control. This works well within physical spaces. With working from home that command and control manifests in the excessive calls. Someone can call you late at night. That was salient nightmare for remote working for me.

Based on his findings, Professor Chinyamurindi notes the need for nuanced organisational responses to remote working. Organisations need to support employees who are working remotely, and an important part of this support involves managers trusting their staff. Secondly, policies guiding remote working, which strike a balance between ensuring that work is done and respecting the individual rights of employees, need to be developed and implemented. In cases where individual rights are being violated, employees also need to be ready to speak out and challenge their managers. A culture of open communication involving goal setting and addressing misconceptions can be useful in ensuring a balance between productivity and the protection of rights. The findings also identify the need for investment for training and support for remote working. Support could include psycho-social support for workers and investment in hardware and software to enhance the remote working experience.

Even though many employees have returned to offices now the pandemic has ended, many continue to work remotely for at least part of the week. Professor Chinyamurindi's research opens the way for the more positive remote working experiences for both employees and employers.

Changing mindsets?

Perceptions of an apprenticeship selection process



Dr Juliet Townes,
Department of
Business Management

In recent years, rapid advances in technology and improvements to production methods in industry mean that the demand for technically oriented artisans has outstripped supply both in South Africa and elsewhere. Although artisan training can result in employment that is well paid and respected, vocational education and training tends to be perceived less positively than higher education and training. Although a lot of research has been done on the benefits of training apprentices as well as on the transition from school to the world of work, little attention has been paid to the processes used to recruit and select apprentices and their impact on perceptions of this kind of training. This gap in the literature drew the attention of Dr Juliet Townes of the Department of Business Management and prompted her to design a study exploring the apprenticeship selection process.

According to Dr Townes, although there is a great deal of evidence supporting the role staffing practices play in organisational success and survival, the value of staffing is often ignored both by academic researchers and decision makers. This is particularly the case for the role of staffing in the recruitment and development of apprentices where a systematic review of the literature, also conducted by Dr Townes and Dr Kim Viljoen, a former colleague in the same department, identified only 12 articles drawing on empirical data written on the subject between 1990 and 2020.

Dr Townes' own research drew on semi-structured interviews with three groups of participants at two automotive factories in the Eastern Cape. Interviewees were Training and HR managers involved in apprentice selection processes and working with apprentices and applicants for apprenticeships. The study drew on narrative analysis to identify a number of key themes in the data.

Both apprentices and applicants believed that the selection process was fair and were able to identify their strengths and development areas as a result of participating in it. None were surprised by the outcomes. All three groups of participants perceived the selection process positively, seeing it as professional and as having raised the status of applicants. This finding shows the potential for the mindset of young people in South Africa to be shifted towards embracing apprenticeships and viewing vocational education and training as an effective way to develop a worthwhile career.

Dr Townes' paper is one of the first published accounts of the perspectives of stakeholders in apprenticeship selection processes and, as such, offers a unique insight into benefits encountered by stakeholders in processes aimed at selecting apprentices in the twenty-first century business environment.

In spite of efforts on the part of the Department of Higher Education and Training to develop a coherent 'post-schooling' sector offering multiple paths to employment, higher education remains the most favoured route. As a result, the universities receive many applications for each available place, particularly in programmes with a professional or vocational focus. If perceptions of training as an apprentice could be enhanced, South Africa could move one step further to achieving the post-schooling education system it needs. Dr Townes' research provides valuable insights into the way perceptions could be boosted and thus contributes to our country developing the multi-skilled workforce it needs.

Fort Hare takes centre stage in responding to calls for socially relevant research



Professor Andries Bezuidenhout,
Department of Development Studies

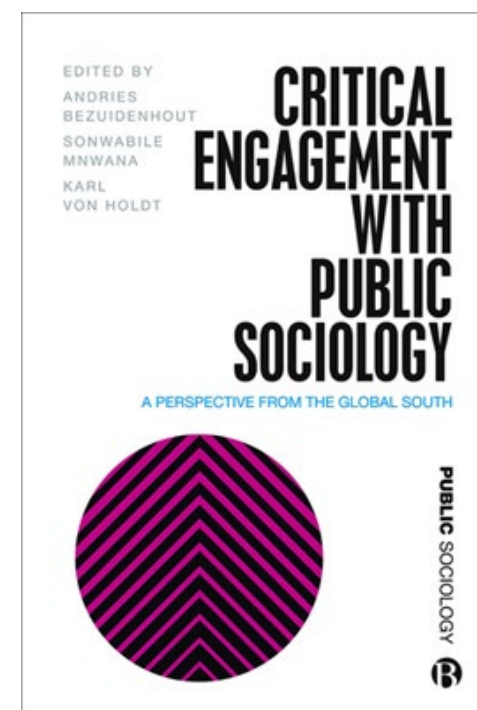
As calls for academic research to be socially relevant become ever louder, funders are also insisting on evidence of the social impact of the research they are being asked to support.

The University of Fort Hare took centre stage in this debate last year with the publication of an edited volume titled *Critical Engagement with Public Sociology: A Perspective from the Global South*, published by Bristol University Press. Professor Andries Bezuidenhout of the Department of Development Studies co-edited the volume with Professor Sonwabile Mnwana of Rhodes University (formerly also at Fort Hare) and Professor Karl von Holdt of the University of the Witwatersrand. UFH vice-chancellor, Prof Sakhela Buhlungu, contributed a chapter to the book.

In the field of sociology, questions around the impact of research are framed by a debate on what has become known as 'public sociology'.

The idea of public sociology in its global form was inspired by sociological practice in South Africa, conceptualised as 'critical engagement', when the US sociologist Michael Burawoy visited South Africa in the 1990s. Burawoy was struck by the extent to which South African sociologists were involved in research that interacted with movements such as trade unions and with community activists, in contrast to the highly professionalised and disengaged nature of much of the sociological establishment in the United States. As president of the American Sociological Association and, later, also of the International Sociological Association, Burawoy launched a campaign to encourage professional sociologists to follow the South African tradition and engage more publicly. From there the term 'public sociology' emerged.

Burawoy's campaign was immensely successful, and the concept of 'public sociology' was mainstreamed. In South Africa, the approach to socially impactful research had always been



known as 'critical engagement' before Burawoy's recasting of this term as 'public sociology'. The volume *Critical Engagement with Public Sociology* explores the trajectory of 'critical engagement' before and after Burawoy's visit to South Africa, comparing this to the trajectory of 'public sociology', which was forged in the very different context of US sociology.



Discussion on the book at the 2023 World Congress of Sociology held in Melbourne, Australia

As such, contributors to the edited volume reflect on four decades of dialogue and concept formation between the dominant sociology of the North and the emergent sociology of the South over a 40-year period. They use this to interrogate the contradictions, challenges, and profound contribution of social science research to popular struggle – and the equally profound contribution of popular struggles to the formation of new sociological knowledge.

Professor Buhlungu's chapter explores the ways in which some members of the discipline of sociology went beyond the study of society to influence change. In South Africa, the broad subdiscipline of labour studies provides probably the best illustration of this form of engagement termed, by Burawoy, 'public sociology'.

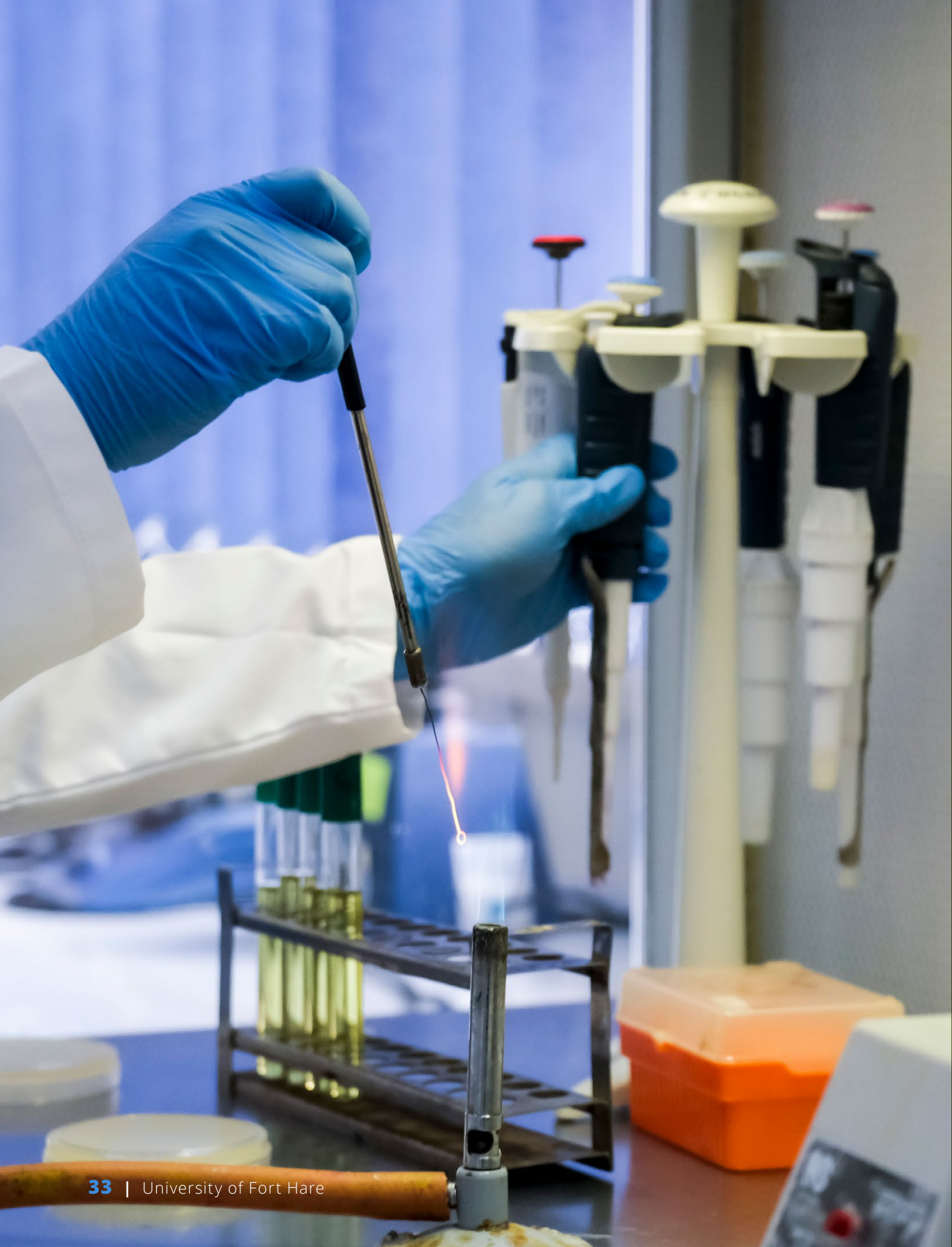
The chapter traces the emergence and growth of public sociology, initially from the position of relative privilege in the ivory tower and later to more direct forms of engagement with new sections of society that emerged in the struggle against apartheid. The discussion explains why the labour movement became the focal point of

public sociology in South Africa.

Finally, the chapter argues that the advent of democracy led to a growing assertiveness among anti-apartheid movements, including labour. Not only did this alter the terms on which public sociology was undertaken, it also resulted in a decline of public sociology inherited from the anti-apartheid struggle.

Other contributors to the book are mostly located in South Africa, but the book also includes contributions from Chile and Turkey as points of comparison across the global South. The volume contains case studies of engaged scholars working in different fields, including environmental activism, struggles of land and mineral rights, and participatory interventions to address urban food insecurity.

In July 2023 a discussion on the book was hosted by the President of the International Sociological Association, Professor Sari Hanafi. Michael Burawoy also commented on the book during the session, an indication of the volume's importance in the field.



Research Articles

**Faculty of
Science &
Agriculture**

Is the mighty AGULHAS OCEAN CURRENT the answer to our electricity woes?



Professor Edson Meyer,
Fort Hare Institute of
Technology



Dr Azile Nqombolo,
Fort Hare Institute of
Technology



Dr Ochuko Overen,
Fort Hare Institute of
Technology

The Eastern Cape is one of the poorest provinces in South Africa and, economically, it remains a fusion of apartheid-era homelands and white-owned farming areas. East London, in the Buffalo City Municipal Area, is where these two 'regions' meet. Little known to the general public, East London is also home to the largest source of potential renewable ocean energy.

The continental shelf off the coast of East London is just a few kilometres wide and the south-westward-flowing Agulhas Ocean current is one of the most powerful and fast flowing in the world. At typical flow speeds of 6 knots (10 km/h) within 200 m of the coast, the potential for the current to be used to produce renewable energy is clear and requires only sufficient investment and the political will for further exploration and the assessment of any environmental impact. Professor Edson Meyer of the Fort Hare Institute of Technology (FHIT) and colleagues Dr Azile Nqombolo of the Department of Chemistry and Dr Ochuko Overen, also of the FHIT, are well placed to take up opportunities for South Africa to draw on this tremendous natural source of alternative energy, given their previous research in this area.

Alternative energy usually refers to energy obtained from sources other than coal. Renewable energy specifically refers to energy that cannot be depleted in our lifetime. Ocean current energy is one such source which has the advantage of being very stable since it is not influenced by prevailing weather conditions or time of day. The University of Fort Hare is thus in a unique position since, just 200 metres off the coast of its East London campus, 50 metres under the surface of the ocean, exists an enormous resource that can, and should, be harnessed in an environmentally responsible manner providing numerous opportunities for research and postgraduate education as this happens.

The infrared satellite image shown below shows the narrow, nearly linear flow of the northern Agulhas current near East London. Upstream near Durban and downstream at Port Elizabeth the image shows conditions which are not ideal for the generation of electricity.

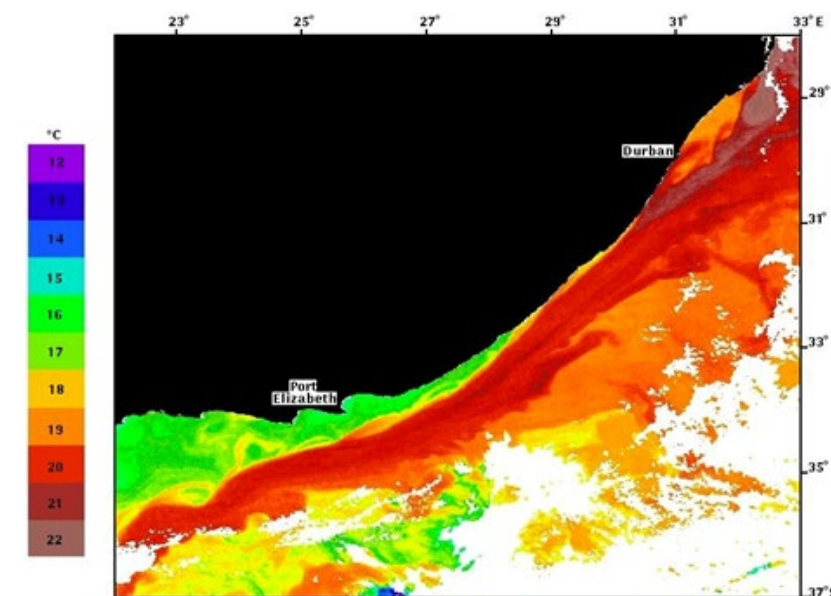


Figure 1: Surface expression of the northern Agulhas Current from satellite thermal infrared showing the nearly linear course of the current at the East London continental shelf (Lutjeharms, 2007)

Ocean current energy technologies convert the kinetic energy of moving water into electricity. These technologies take advantage of the horizontal flow of ocean currents to power a generator that converts mechanical power into electrical power. Ocean current energy devices are often rotating machines similar to wind turbines, with a rotor that spins in response to the speed of water currents. An example of an underwater turbines is shown in Figure 2 below.



Figure 2: Underwater turbines (<https://tractebel-engie.com/en/references/raz-blanchard-tidal-energy>)

The power available worldwide in ocean currents has been estimated to be about 5 000 GW, with power densities of up to 15 kW/m². The 10 km/h (3 m/s) speed of the ocean would not normally make the generation of energy from wind feasible. However, ocean currents are about 840 times denser than air, so ocean currents can generate power that is equivalent to the power generated from 30m/s wind speeds. As a result, ocean currents represent a significant reservoir of energy.

Professor Meyer and his colleagues have calculated that a total of 1 500 MW of power could be generated from 10 square kilometres of ocean off East London. This translates into sufficient power to run 1 million homes in South Africa in a 24-hour cycle. With stage 6 load shedding now a common occurrence and pressure growing for South Africa to move away from carbon fuels, it is easy to see that harnessing the potential of the Agulhas Ocean current should be a priority for local, provincial, and national government. Energy resources from the Agulhas current make up a significant portion of the energy mix in both the Eastern Cape and South Africa as a whole.

Research done under the Hydrogen South Africa (HySA) strategy to produce hydrogen from seawater is also a potential source of renewable energy. As a result of this strategy, the South African government has been developing hydrogen and fuel cell technologies to produce hydrogen, mostly from fresh water. Using ocean current technology to produce hydrogen, which can then be used as

fuel, by splitting seawater adds to the value that can be achieved from using the ocean as a source of energy. The electrochemical process involved in splitting seawater provides an opportunity for numerous Master's and doctoral studies focusing on novel developments of membranes and electrodes within the wider hydrogen fuel economy.

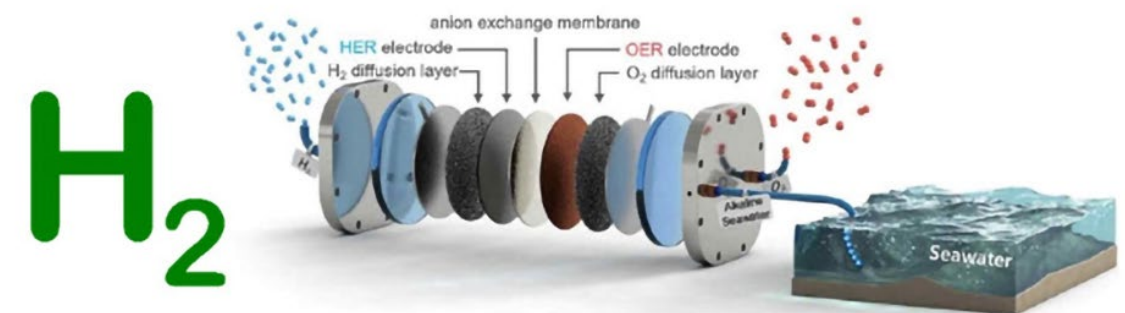


Figure 3: Illustration of splitting seawater to produce hydrogen fuel (<https://fuelcellsworks.com/news/seawater-split-to-produce-green-hydrogen>)

As a result of their exploration of the potential of the Agulhas current to provide renewable energy, Professor Meyer and his colleagues identify the need for cooperation between East London Industrial Development Zone, the Border-Kei Chamber of Business, Eskom and the South African National Energy Development Institute. As the FHIT is already a strategic partner in the Solar Energy Research Programme of the national Department of Science and Innovation, the Institute is well suited to take the lead in this initiative through research and training, and development of innovative technologies.

The location of a university outside major metropolitan areas in Gauteng, the Western Cape and KwaZulu Natal is often seen as a disadvantage. This is not true of the University of Fort Hare which constantly seeks to use its location as an advantage in its research. The work of Professor Meyer and colleagues on the potential of the Agulhas current to end our current energy woes is but another example of work that does exactly this.

Goat meat, pork, or beef?

Consumers' preferences for meat products



Dr. Irene R. Mazhangara,
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Dr. Ishmael F. Jaja,
Department of Livestock
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Dr. Eliton Chivandi,
School of Physiology,
University of the
Witwatersrand

Across the world, goat meat is one of the most commonly eaten red meats. This may surprise indigenous South Africans, who tend to eat chicken, pork, mutton/lamb and beef for everyday meals, saving goat meat for special traditional ceremonies. Until recently, cost played a big role in the choices people made when buying meat. However, growing awareness of the impact of poor diet on health has led to a preference for more healthy food. Nevertheless, although goat meat is low in fat and, therefore, could function as a healthy food choice, the consumption of goat meat in South Africa is still limited.

In order to better understand why goat meat is not eaten more widely, Dr. Irene Mazhangara of the Department of Livestock and Pasture Sciences at the University of Fort Hare and colleagues Dr. Eliton Chivandi of the University of the Witwatersrand and Dr. Ishmael Jaja of the University of Fort Hare conducted an innovative study that formed the basis for an article published in the *Journal of Culinary Science and Technology* in 2022. As will be seen below, their work has implications for the economy, particularly in the Eastern Cape, as well as for the health of the South African population.

In the study, 5kgs each of goat, beef, and pork shoulder meat and 2kgs of goat, beef and pork fat were obtained from a commercial slaughterhouse and made into sausages. Two hundred and forty-three people in the Eastern Cape were then asked to taste each variety of sausage (goat, beef or pork) and to rate them on a 9-point scale indicating the extent to which they liked or disliked each variety. Results were analysed statistically.

Overall, participants liked the tenderness, flavour, and juiciness of the goat sausage. Differences between the extent to which they liked the pork or beef sausages were not significant but non-South Africans liked the goat sausages more. There was no difference in how much the participants liked the actual flavour of the sausages.

Participants were also asked to taste the sausages 'blind' (that is without knowing which variety they were eating) and were asked which had the most distinct flavour. The majority indicated that pork sausages had the most distinctive flavour followed by beef and then goat.

Customers' perceptions of the quality and acceptability of meat and meat products have an impact on sales and, thus, on the profitability of the meat industry. Most of the South African participants in the study had never eaten any meat products derived from goats before they were offered the sausages in the study. The researchers conducting the study therefore expected that the goat meat sausages would be identified as having the most distinctive flavour. This was not the case, however, as the flavour of the pork sausage was identified as being more distinct, an observation that confirmed other research reported in the literature.

Overall, the study showed that, based on consumer preferences, goat sausage was acceptable and pleasing to most participants. In addition, it also showed that a sizeable proportion of participants liked the texture, juiciness and other characteristics of the goat meat. This suggests that a niche market exists for goat sausage and that opportunities exist to boost demand for goat meat products. This is especially the case if the benefits to health of eating goat meat are promoted through advertising.

When you see an advertisement for goat meat products in the future, do think back on the role of Fort Hare researchers in using their expertise and knowledge to explore the potential for this meat variety to play a greater role in healthy South African diets.

Research Articles

**Faculty of
Social Sciences &
Humanities**



Promoting diversity, inclusion and visibility:

LGBTQ students in rural South African universities



Professor zethu Matebeni,
NRF SARCHI Chair in
Sexualities, Genders and
Queer Studies



**Dr Bellita Banda-
Chitsamatanga,**
NRF SARCHI Chair in
Sexualities, Genders and
Queer Studies

The Incheon Declaration for Education 2030, signed by delegates who gathered together in South Korea at the invitation of the Director General of UNESCO, commits itself to contributing to Sustainable Development Goal (SDG) 4 by working towards inclusive and equitable quality education and lifelong learning for all. Education that is holistic, embraces diversity, and is embedded in social justice is yet to be realised. This is especially the case for LGBTQ students, who are at risk of being discriminated against and excluded based on their actual or perceived sexual orientation, gender identity, gender expression, or sex characteristics.

In response to this, Professor Zethu Matabeni, the NRF-SARCHI Chair in Sexualities, Genders and Queer Studies at the University of Fort Hare, and colleagues conducted a research study entitled *Supporting LGBTQ students in Rural Universities in South Africa: Towards promotion of diversity, inclusion and visibility*. A first of its kind for the University of Fort Hare (UFH), the study aimed to explore UFH students' knowledge on, and perceptions and experiences of, LGBTQ issues, and measures taken by the university to promote or undermine inclusion and diversity.

A total of 362 responses was obtained using a survey administered between May and September 2022 on the Alice Campus. Student fieldworkers, many of whom were UFH Queer Ambassadors, were recruited from the Alice campus and trained by Professor Matebeni and colleague Prof Azrini Wahidin, from Warwick University in the United Kingdom, on how to administer a survey. The recruitment of field workers from the student community was important not only because of the need to transfer skills but also to build rapport with research participants.

Most respondents (71.8%) had been registered at UFH for 1–3 years, 24.3% had been registered for 4–6 years and 3.9% for more than 6 years. Most participants (85.6% were undergraduates and the remainder were postgraduate students or postdoctoral fellows. The length of time participants had been on campus was important, given findings of the study which revealed that, even though most respondents knew there were LGBTQ students on campus, pre-conceived notions, and a lack of understanding of LGBT identities were evident even though respondents were in an academic community. For instance, some of the students opted to withdraw from participating once they knew about the purpose of the study due to their cultural and religious beliefs.

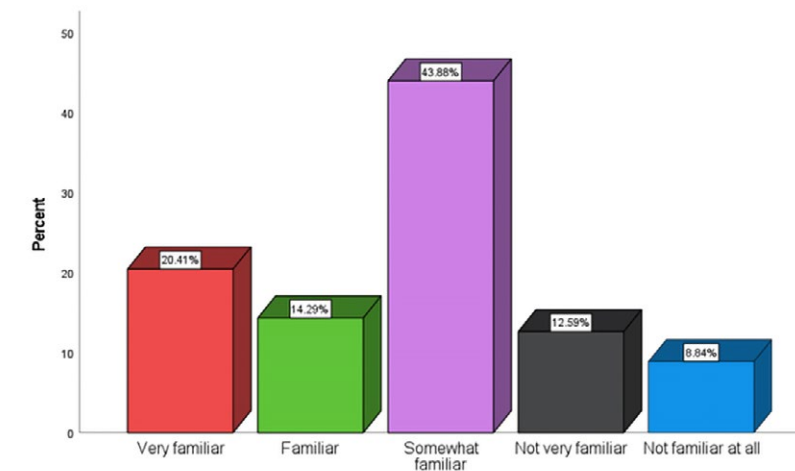


Figure 1: Responses to a question about students' familiarity with LGBTQ issues

Almost 70% of the respondents to the survey reported frequent interaction with LGBTQ students, while 30% had no interaction or were unsure. Existing studies show that peer interactions with LGBTQ students promote learning and a positive campus climate. Despite evidence of interaction with LGBTQ students, results showed that homophobic and transphobic remarks by some peers, lecturers, support staff, and wardens meant that opportunities for students to benefit from a transformative educational experience and become familiar with LGBTQ issues were reduced.

The findings of the study call for more awareness programmes and inclusive teaching and learning aimed at improving knowledge about LGBTQ issues. The results also suggest that many lecturers were reticent to talk about LGBTQ issues and had low levels of awareness of what an LGBTQ curriculum could involve. A lack of active and visible LGBTQ student groups was also evident in the results.

Responses also showed that one of the most pressing concerns was related to the safety and privacy of LGBTQ students who had to share rooms and bathrooms in residences. Another major finding was that, though university health facilities were cited as professional and non-discriminatory, students claimed to use the facilities rarely. For students identifying as LGBTQ, lack of access to health care addressing their specific needs, and the

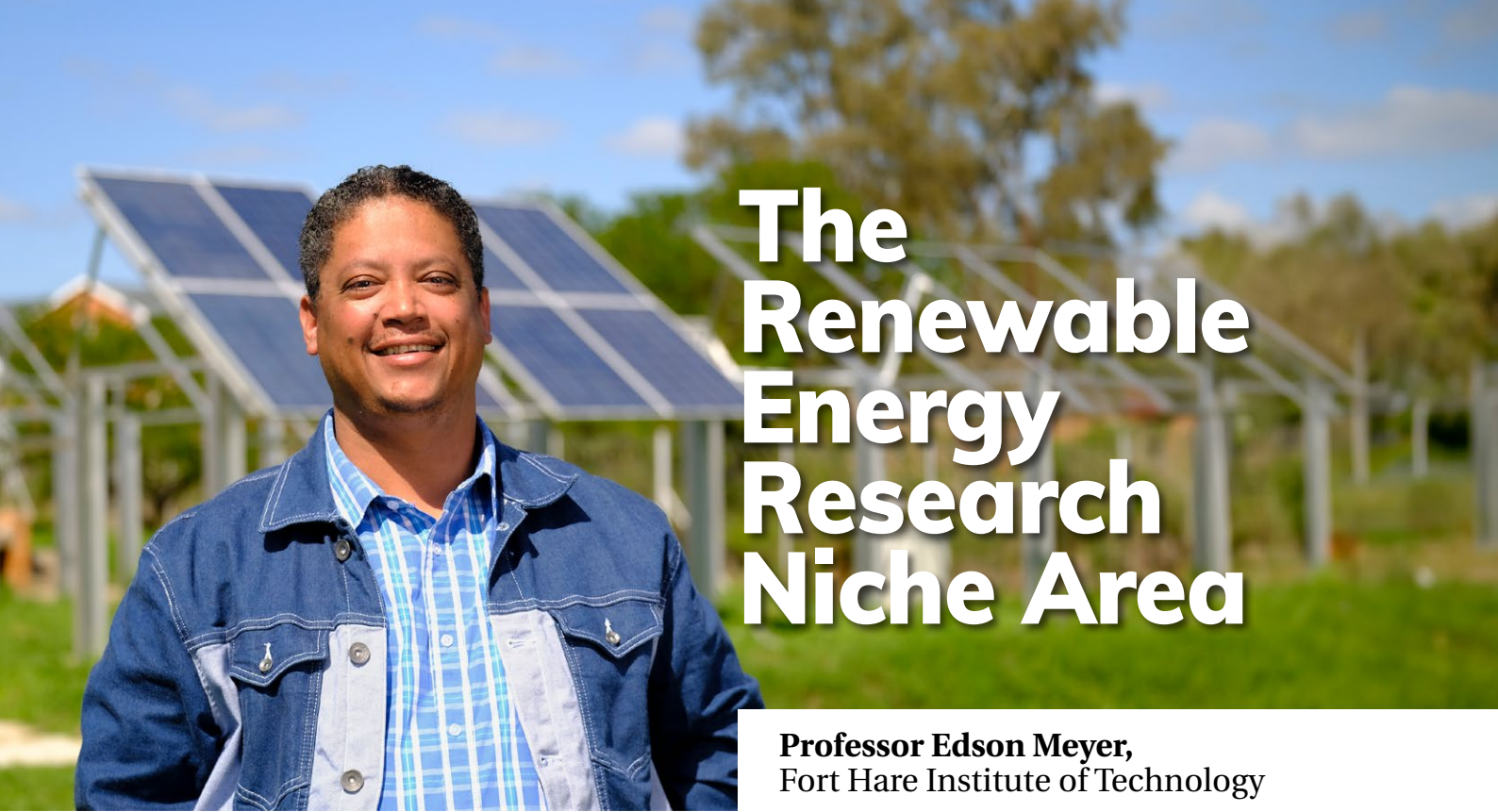
possibility of this leading to mental anxiety when care was required, was noted.

Results of the study point to the need for concerted efforts to increase awareness of what constitutes differential and discriminatory treatment and inclusive campaigns and training. For example, student application forms should use gender inclusive language and assist the university to build accurate institutional data on student orientation, gender identity, gender expression or sex characteristics. Access to inclusive residences and gender-neutral options, health facilities and the development of an inclusive curriculum that is guided by policies that specifically mention and address homophobic and transphobic bullying are also critical. Thanks to their influence on student societies and clubs, the SRC needs to be a key partner in creating an inclusive campus climate. The University also needs to develop processes to allow stakeholders responsible for access to student services to engage with LGBTQ students in order to understand their needs, priorities, and concerns.

This critical research conducted by Professor Matebeni and her colleagues under the auspices of the NRF Chair in Sexualities, Genders and Queer Studies has provided insights which will allow Fort Hare and other rural universities to provide an educational environment that is inclusive of and welcoming to all.



Research Niche Areas

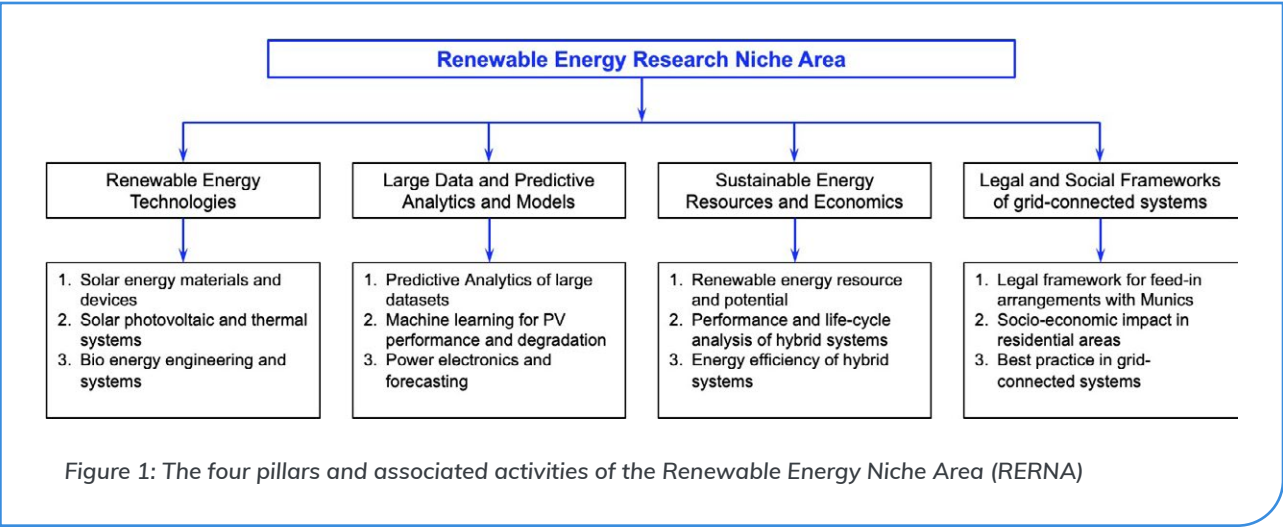


The Renewable Energy Research Niche Area

Professor Edson Meyer,
Fort Hare Institute of Technology

The work of the Renewable Energy Research Niche Area (RERNA) at Fort Hare, led by Professor Edson Meyer, conducts research on technological innovations and innovative assessments of the impact of these innovations on the social, economic, and legal aspects of renewable energy technologies. Professor Edson Meyer is joined in the RERNA by colleagues Dr Yeshona Sukai, Dr Mpiana Mutambyi, Dr Leocardia Zhou, Dr Ochuko Overen, and Advocate Sibulelo Seti, who are located in a range of disciplines including statistics and law.

The RERNA is built on four pillars with academic programmes associated with each. Research in each pillar is the basis on which students are working towards Honours, Master’s and doctoral degrees, and also has the potential to inform curriculum reform in coursework. The four pillars allow for inter-, intra-, and trans-disciplinary collaborative approaches to address challenges around energy security, especially in an environment where it is evident that the current energy crisis in South Africa has no solution in the foreseeable future.



Research Niche Areas

The *Renewable Energy Technologies* pillar provides a platform for realising the possibilities of solar and bio energy systems and materials. Flagship research in the Fort Hare Institute of Technology (FHIT) has focused on the efficiency of minute quantum dot semi-conductors, that ease the way electric current flows through materials. The RERNA, along with the Department of Chemistry, is investigating the use of these semi-conductors in solar cells with the aim of gaining a competitive advantage over existing technologies. Researchers in the pillar are also exploring the use of various materials in cathodes to gain insight into their behaviour in different conditions.

In biotechnology, ‘factories’ of microbes are able to produce biofuels and biochemicals with the potential to address key global challenges. For example, renewable energy sources such as biogas can be used for producing electricity and for cooking and, thus, address environmental challenges. The aim of the RERNA is understand the conditions on which viable and sustainable microbial factories can be built. Another goal is to research green hydrogen technologies which use solar energy to produce hydrogen from seawater.



Figure 2: Renewable energy RNA focusing on solar and wind energy technologies

The *Large Data and Predictive Analytics and Models* pillar analyses large data sets to develop models which can then provide solutions to a broad range of issues across the RERNA. The overall goal of this pillar is to optimise energy efficiency using historical and environmental large-scale data analytics. The research team uses open-source technology to integrate and maintain computer systems in order to ensure data is analysed effectively and efficiently.

The *Sustainable Energy Resources and Economics* research group monitors components of the solar energy resource on Fort Hare’s Alice campus in order to improve the efficiency of the system and ensure its sustainability. A particular focus of the group is Agrivoltaics, or the utilisation of land to produce both crops and solar power. Work in this focus area goes a long way in contributing to the achievement of sustainable development goals.

An important contribution to the Sustainable Energy Resources and Economics pillar comes from the Risk and Vulnerability Science Centre (RVSC), thanks to its focus on strengthening the capacity of resource-poor communities to adapt to climate-related problems. Insights from research involving the RVSC aims to enhance Just Energy Transition Programmes by increasing involvement from communities and creating employment. The RVSC is also involved in community food gardening and has recently received a Water Research Council grant to scale up its activities in this area in the Eastern Cape. Importantly, the food gardening programme draws on agrivoltaics.

Current debates about the use of renewable energy in South Africa have been heightened by the loadshedding which continues to affect households and businesses alike. As a result, research focusing on the legal and regulatory frameworks for renewable energy use conducted by the Legal and Social Frameworks of Grid-Connected Systems pillar, involving members of the Faculty of Law, of the RERNA is especially important.



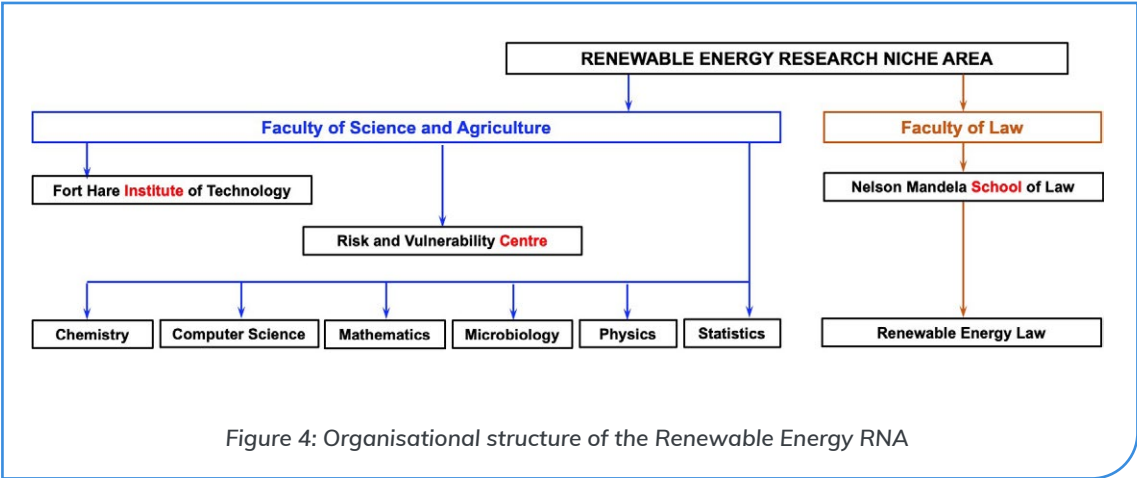
Figure 3: Legal regulatory framework, legislative and policy drafting, including applicable standards for renewable energy technologies underpin the legal aspects of renewable energy

Research Niche Areas

Journal publications, seminars on renewable energy law, and engagement with relevant stakeholders both public and private sector on the legislative and policy framework on renewable energy and the law conducted by researchers working in this pillar all contribute to the work of the RERNA. Currently, research involving a comparative analysis of the way the law can be used to enable the use of renewable energy in both developing and developed nations is being considered. This research could identify a set of best practices to be followed in South Africa. Researchers working in this pillar

are also building capacity to analyse existing legal regulatory frameworks and legislative and policy drafting to develop standards for renewable energy technologies, etc.

The organisational structure of the RERNA spans two faculties and is inclusive of an institute, a school, a centre, and seven academic departments; an indication of the powerful way UFH researchers are able to come together to contribute to a common interest and set of goals.



All in all, the RERNA offers enormous possibilities for its members to build on existing research strengths and to continue to build University of Fort Hare's reputation as a leader in the knowledge area of renewable energy.

Understanding Energy: Basic Measures to Navigate Loadshedding



Ochuko K. Overen
Fort Hare Institute of Technology



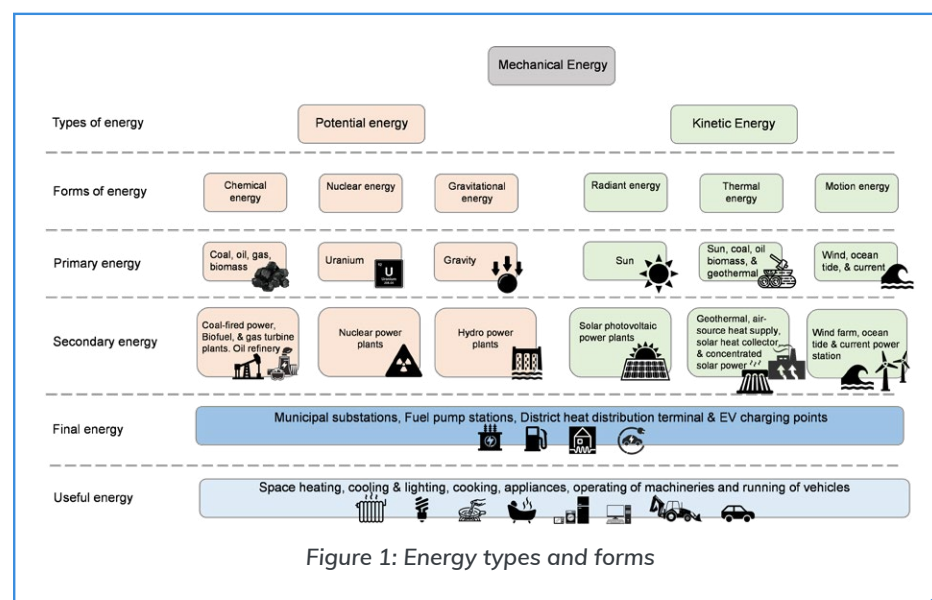
Edson L. Meyer,
Fort Hare Institute of Technology

Introduction

Having experienced its first loadshedding in 2007 with 176 GWh shed, South Africa observed its worst-ever loadshedding in 2021 and 2022, shedding 2455 GWh and 8116 GWh with cumulative 47 and 157 power-outage days (CSIR, 2023). Loadshedding in 2023 is on track to exceed this record, with power outages experienced daily between January and May. Based on measures adopted to tackle the ongoing electricity crisis (National Treasury, 2023), the government is committed to its clean energy transition. Thus, this article explores the basic measure to mitigate loadshedding impact and maximise future electricity supply.

Overview of energy and power

To appreciate energy and its impact on our daily activities, energy is defined from a mechanics perspective. The energy of an object in motion is known as kinetic energy, while potential energy is associated with an object at rest. The various types and forms of energy are presented in Figure 1.



Research Niche Areas

The rate at which electrical energy or electricity is delivered to a device is known as power, and conversely, energy is the amount of power used in a given period. The SI unit of energy is Joule (J), while power is expressed in Watt ($W = J.s$). Electricity is measured in kilowatt hour (kWh), equivalent to 3.6 MJ. Table 1 summarises the relationship between other fuels and electricity.

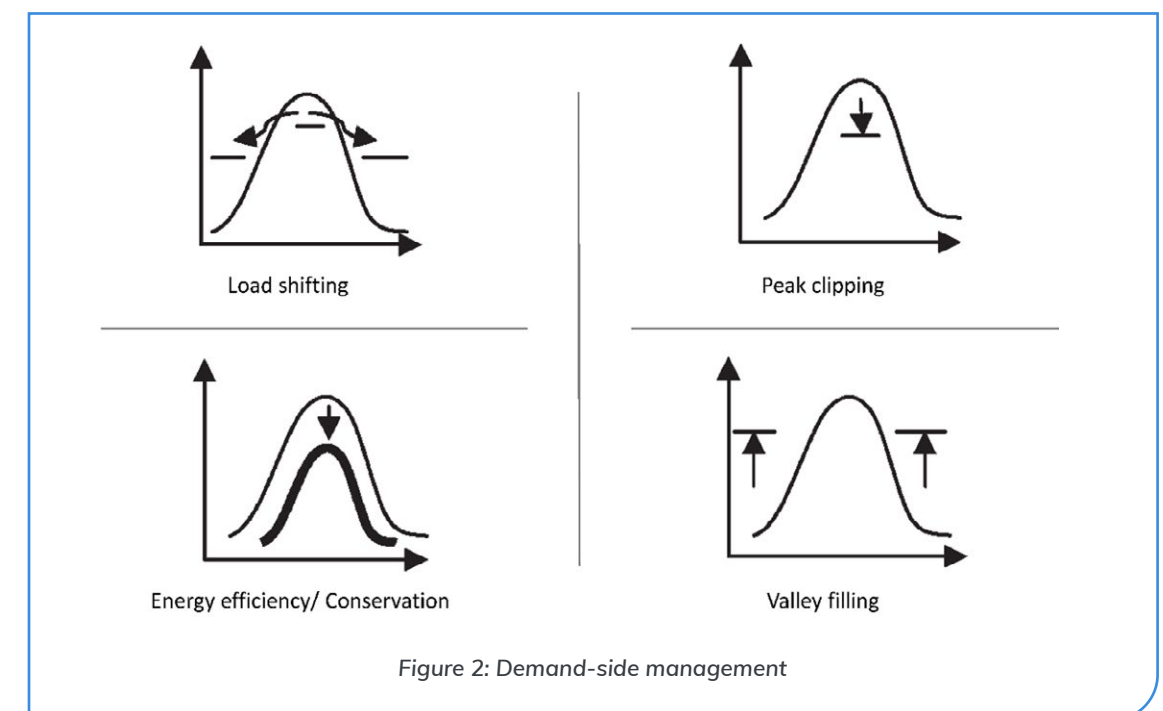
Table 1: Various fuels equivalent to electricity

Fuel (unit per hour)	Calorific Value (CV)	Electricity (kWh/h)
1 m ³ of methane	39.8 MJ/m ³	10.21
1 kg of LPG	49.3 MJ/kg	381.80
1L of diesel	38.6 MJ/L	10.72
1 kg of coal	24.4 MJ/kg	6.78

Over 90% of electricity in South Africa is generated by Eskom, with coal as the primary energy source, contributing up to 80% (Eskom, 2022). The country's high carbon-intensive electricity generation has attracted international attention, committing the government to a clean energy transition.

Demand-side Management

Energy efficiency and conservation are often used interchangeably but are not correctly the same. Using technology to reduce energy usage without compromising comfort or performance is known as energy efficiency. Energy conservation deals with behaviour and energy use patterns to protect energy from depletion by reducing energy consumption. Other forms of demand-side management (DSM) are presented in Figure 2.



Load shifting is the load transfer from a peak to an off-peak demand period. Peak clipping involves adopting energy conservation measures during peak periods to reduce demand. Balancing peak clipping by constructing off-peak demand load control is known as valley filling. Other DSM measures, such as load building and flexible load, exist in a smart grid.

Renewable energy

Non-finite and continuously available energy sources are referred to as renewable energy, and these include solar, wind, hydro, geothermal, biomass, and ocean energy. Solar photovoltaic (PV) systems and wind turbines are the most dominant renewable energy technologies.

A solar PV system is a device that uses solar cells to convert sunlight into electrical energy. It consists of an inverter which converts generated direct current (DC) to alternating current (AC) required for electric loads. Also, it includes a charge controller that manages the system’s operation to safeguard the battery. Nowadays, inverters and charge controllers are designed as hybrid inverters, reducing the system’s cost and space consumption. A battery stores excess energy generated from the solar PV system for use at night or in bad weather conditions. Solar PV systems can be configured as stand-alone, grid-assisted, and grid-tied (Overen and Meyer, 2022).

Wind turbines harness wind energy by converting moving air kinetic energy through mechanical processes to generate electricity. Modern wind turbines employ rotors to extract energy from wind at a cut-in speed of 3-4 m/s. As the wind speed increases, so is the generated power until the rated power is reached, corresponding to a wind speed of 11-15 m/s. Wind turbines are equipped with control systems that protect them from overloading through stall control, pitching blades or both techniques during high wind speed of about 20-25 m/s, which is the cut-out speed.

Battery backup system

Battery backup systems (BBS) involve the use of grid electricity to store energy and use it during power outages. BBS employs hybrid inverters, which enable charge control, AC/DC power conversion and high-speed (10-20 ms) auto-transfer from grid supply to inverter and vice versa. In recent years, lead-acid and lithium-ion batteries have dominated the market (Luque and Hegedus, 2003). A comparison of both batteries is presented in Table 2.

Table 2: Lead-acid and lithium-ion batteries comparison

Metrics	Lead-acid	Lithium-ion
Cell voltage (v)	2	2.4 – 3.8
Efficiency (%)	8 – 85	95
Cycle life (No. of cycles)	300 – 500	> 3000
Life span (years)	3 – 7	10 – 15
Depth of discharge (%)	50	85
Cost (R/Ah)	25.00 – 67.00	250.00 – 400.00

Alternative power supply sizing

Only solar PV and BBS are covered here since they are commonly used in residential and commercial buildings. Thus, a solar PV module can be sized using Equation (1).

$$N_{PV} = \frac{\varepsilon_p \eta}{h_s R_{wp}} \tag{1}$$

where N_{PV} represent the number of solar PV modules, ε_p is the daily total energy consumption of a building (kWh), η is the system loss, h_s is the local sun hours (kWh/m²), while the PV rated peak power is denoted by R_{wp} . The system battery capacity can be determined by

$$\beta_{cap} = \left[\frac{\varepsilon_p}{B_x D_{dis} v_{batt}} \right] \delta \tag{2}$$

β_{cap} is the battery capacity (Ah), B_x is battery loss, D_{dis} denotes the depth of discharge, and v_{batt} is the nominal battery voltage (12 or 24 V for lead acid batteries), and the period (hours or days) of autonomy is given by δ . The desired period of autonomy greatly influences the capacity of the battery and the overall system cost. A maximum power point tracking algorithm charge controller was considered and can be sized based on charging current, as given in Equation (3).

$$I_c = \gamma_{Isc} \eta \tag{3}$$

where I_c represent the charging current, γ_{Isc} is the PV array total short circuit current (A). Lastly, an inverter capacity of 25 to 30% larger than the total load is recommended. This ensures that the inverter supports all loads when operated simultaneously. Energy efficiency and conservation are paramount before solar PV systems and BBS sizing to ensure optimal performance and reduced costs.

Conclusions

Solar PV and battery backup systems were identified as alternative power sources for residential and commercial buildings. It was shown that battery backup systems are not renewable energy or energy cost savings measures but a means to navigate power outages. Given the persistent energy crisis in the country for more than a decade, it is evident that the current centralise electricity supply model cannot meet the growing energy demand. Thus, municipalities should promote distributed generation through incentivised prosumer schemes.

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The Research in Inclusion and Township Economies Niche Area

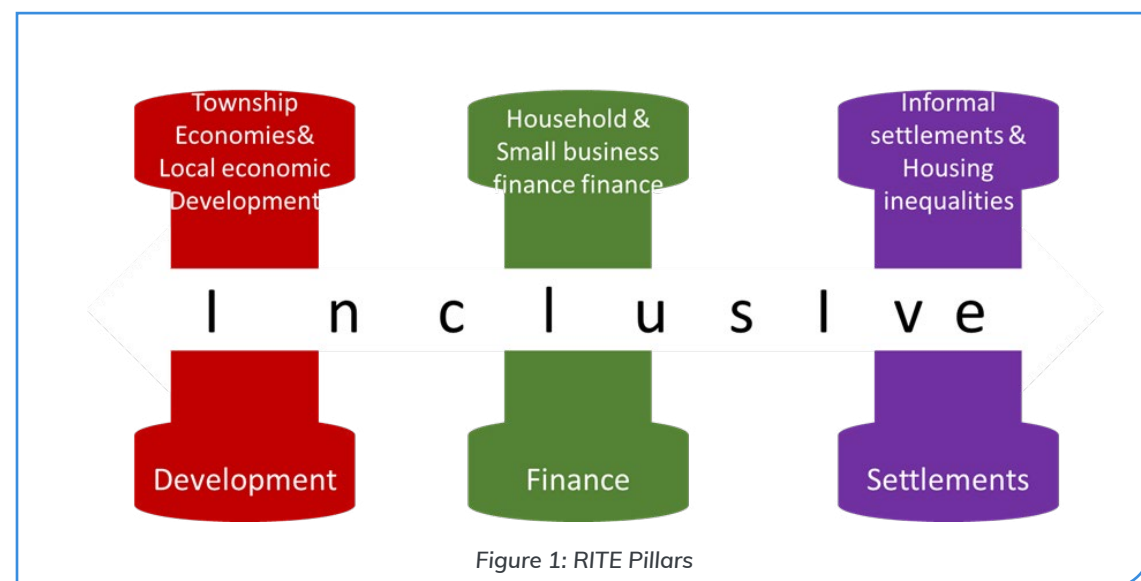


Professor Munacinga Simatele,
Department of Economics

The academic programme of the Research in Inclusion and Township Economies (RITE) Niche Area is grounded in inclusivity. The overwhelming lack of inclusivity at different socio-economic levels in the Eastern Cape is evident in data showing that, in 2016, 12.7% of households were living in poverty, a figure above the national average. Eight of the ten poorest municipalities in South Africa are located in the province where the unemployment rate runs at 42%, in comparison to the national average of 33.3%. In the other mainly rural South African provinces of Mpumalanga and Limpopo, the

unemployment rate is 36%. In addition, the Eastern Cape has the second-highest number of indigent households as identified by municipalities. These figures underpin the social and economic exclusion of many people, particularly those residing in rural and former black townships.

The RITE Niche Area focuses on inclusivity as espoused by the Sustainable Development Agenda 2030 and its intent to ensure that 'no one is left behind'. The Niche Area has three key pillars, as shown in Figure 1.



Research Niche Areas

Following its establishment, the RITE Niche Area's first activity was a colloquium held in July 2023. The colloquium, themed *SMME embeddedness, innovation, and the enculturation of an entrepreneurial spirit in the Eastern Cape Province: Options for Policy and Practice*, was hosted in collaboration with the Eastern Cape Socioeconomic Consultative Council (ECSECC) and was attended

by policymakers, development funding institutions, and private and government officials. The focus of the two days of discussion was on ways to improve policies and strategies to advance business development and promote sustainable entrepreneurship in alignment with the National Development Plan and the global Sustainable Development Goals.



RITE steering committee and UFH staff

Professor of Economics at Fort Hare, Munacinga Simatele, presented the results of a year-long engagement with 169 household enterprises in a study funded by the National Research Foundation. The study monitored and tracked enterprises, an activity made possible by the 10 gigabytes of data given to participants each month to allow them to research business opportunities online and communicate with researchers. Based on the results of this engagement, Professor Munacinga's presentation proposed a people-focused, embedded approach to small business finance.

The study, which comprised entrepreneurs from different sectors, showed that, although many businesses start and fail, small-scale, informal micro businesses tend to have longevity. These micro businesses send children to school, build homes and sustain livelihoods although they do not address the

need for growth. The study also established that 'embeddedness', adopted from economic historian Karl Polanyi's 'substantivism' which sees economies as embedded in society and culture, impacts significantly on the way household enterprises save, borrow, and make investment and financial management decisions.

Professor Simatele's people-focused research identified Small, Medium and Micro Enterprises (SMMEs) as the backbone of long-term competitiveness and sustained income growth. It also identified policy barriers hindering entrepreneurship and economic stability. The study identified possible policy interventions, including establishing business advice centres, providing support for the care of children and the elderly and practical training in financial literacy and entrepreneurial skills.



Participating SMME owners. Seated (L-R): P Ngozi, S Mausi, N Kadeni, F Tshuma. Standing (L-R): L Mpati, M Nkonza, S Javu, S Sompini

The colloquium also featured a paper co-presented by Lusanda Dodo, of the Eastern Cape Socio Economic Consultative Council (ECSECC), and Professor Ronney Ncwadi, of Nelson Mandela University, focusing on a baseline study which will contribute towards the development of a student entrepreneurial model. Vuyokazi Magungxu of the ECSECC presented a third paper on the innovation potential of SMMEs and opportunities to leverage the Fourth Industrial Revolution for growth.

Department of Economic Development and Environmental Affairs and Tourism Regional Director for Amathole, Vuyelwa Mantyi, said the papers were presented at an opportune time as the Eastern Cape province is reviewing its Provincial Economic Development Strategy. She also highlighted the importance of teaching entrepreneurship early given that only about a third of young people proceed to tertiary education.

The colloquium allowed some participants in the study to talk about their businesses and the ways in which the project had benefitted them. Participants also benefitted from nearly R1million worth of sponsorships provided by the Eastern Cape Development Corporation and the

Wholesale and Retail Sector Education and Training Authority.

The colloquium concluded with a robust engagement between government, the private sector and higher education through four breakaway groups focusing on four areas: Finance, Support Services, Policy and Development Interactions in Small Businesses and Data, Information and Intelligence support for policy.

Recommendations from the colloquium were for government, private sector and academic institutions to collaborate to give emerging entrepreneurs much-needed support. Financial institutions were encouraged to revisit their policies and reduce red tape constraining access to funding.

As a result of the project, the RITE Niche Area has been invited to be collaborate on the revision of the Entrepreneurship Strategy spearheaded by the Department of Small Business Development, strong evidence of the potential of its research to impact on socio-economic development in the Eastern Cape.



Breakaway Group 4: Data, Information and Intelligence support



Participant stories: N Kadeni, Phumzile Ngozi, S Javu (Left to right)



Mr Rufus Nayo of the Eastern Cape Development Council

The African Liberation Heritage in Citizenship and Society Research Niche Area



Dr Chris Allsobrook,
Centre for Leadership Ethics in Africa

The Faculty of Social Sciences and Humanities has established an exciting new Research Niche Area (RNA) on African Liberation Heritage and its relevance for Citizenship and Society. The niche area brings together specialists from History, Anthropology, Political Philosophy and Ethics to consider issues of cultural heritage, group identities, integration, exclusion, rights, and governance. Members of the RNA are Dr Christopher Allsobrook of the Centre for Leadership Ethics in Africa, Dr Thozama April of the National Heritage and Cultural Studies Centre, Dr Teresa Connor of the Institute of Social and Economic Research, Professor Motsamai Molefe of the Department of Philosophy, Professor Neil Roos, Dean of the Faculty, Dr Buti Kompfi of the Department of History, and Professors Abraham Olivier and Rianna Oelofsen both of the Department of Philosophy.

Building on Fort Hare's strong African liberation heritage, members of the RNA aim to produce research on impediments to social and political transformation in postcolonial development. The RNA will offer insights into conditions hindering social cohesion and development, by examining practical interventions that have proven historically to mobilise solidarity in transformation.

Firstly, members of the RNA intend to contribute to growing studies of liberation histories, drawing on of the valuable collection of liberation archives at the National Heritage and Cultural Studies Centre in order to consolidate existing research capacity and mentor emerging researchers. Liberation Heritage is a crucial basis for understanding ideas, norms, and practices related to citizenship and human rights.

Secondly, members aim to explore topics linking the themes of identity and difference with concerns for social transformation by decolonising knowledge and education. Finally, they aim to produce research that will draw on the political theories of African liberation movements and their application to practice concerning governance, sovereignty, property, civic identity, and rights, to allow for the emergence of an ethics of dignity, duty, collective upliftment, and civic personhood.

This inspiring agenda from a new niche area draws on the University of Fort Hare's strong history of producing historical and archival studies and on its own standing as an institution that has produced many leaders of resistance movements across the African continent.

Vice-Chancellor's Awards



VICE-CHANCELLOR'S BOOK AWARD

As part of efforts to encourage researchers to write scholarly books, the University of Fort Hare (UFH) has introduced a Vice Chancellor's Book Award which recognises and showcases excellent books published by UFH researchers. Since the 2023 Vice Chancellor (VC)'s Book Award is the inaugural prize in this newly introduced category, all nominees will be recognised for their hard work in producing some very good books.

VC's Book Award Winner:

Using African philosophy to reflect on an age old debate

Dr Motsamai Molefe

Title of Book: *Partiality and Impartiality in African Philosophy*

Dr Motsamai Molefe is a senior researcher at the Centre for Leadership in Ethics [CLEA] at the University of Fort Hare. He is the member of the African Liberation Heritage in Citizenship and Society Research Niche Area at the University of Fort Hare and is also a fellow of the prestigious *Ubuntu Dialogues Exchange Fellowship Programme* jointly hosted by Stellenbosch University and Michigan University. Finally, Dr Molefe is the editor-in-chief of the *South African Journal of Philosophy*.

He has published articles in highly regarded *journals of philosophy and politics*, such as the *Journal of Value Inquiry*, *Cultura*, *Monist*, *Politikon*, and *African Studies*, and co-edited a collection entitled *Human Dignity in an African Context*, which appeared in 2023 and which was published by Palgrave Macmillan.

To date, he has written six monographs including *African Ethics and Death: Moral Status and Human Dignity in Ubuntu Thinking*, to be published shortly by Routledge, and *Human Dignity in African Philosophy: A Very Short Introduction*, published in 2022 by Springer.

His book *Partiality and Impartiality in African Philosophy*, which was published in 2021 by Lexington Books, an imprint of the prestigious US based publisher Rowman and Littlefield, provides an innovative contribution to an enduring debate in the discipline of philosophy involving the tension between the requirements of fairness (or, impartiality/equality) and special obligations (or, partiality/reasonable favouritism).

The debate on which the book centres hangs on two moral intuitions that appear to pull in two different directions. On the one hand, we have the moral intuition that we owe all human beings equal consideration. On the other we sense that we owe 'reasonable favouritism' to family and friends with whom we enjoy special ties.

The book is original in three crucial ways. Firstly, it is the first book-length effort that systematically reflects on the debate between impartiality (fairness) and partiality (reasonable favouritism) in African philosophy. Until now, books on

this subject have tended to be authored by scholars located in the Western philosophical tradition. Secondly, by drawing on the work of, amongst others, the Ghanaian philosophers Kwame Gyekye and Kwasi Wiredu, and the Nigerian philosopher Ifeanyi Menkiti, the book contributes to the debate on the tension between partiality and impartiality in a way that recognises scholars in Africa as intellectuals who can contribute to serious debates in philosophy. Until now, the work of these prominent African intellectuals has not been used to reflect on this particular debate. Finally, the book also relies on the indigenous intellectual and values driven resource of Ubuntu, or personhood, to reflect on, and possibly resolve the tension between partiality and impartiality in African philosophy. Until now, the concept of Ubuntu and/or personhood had not been deployed as resource to study values and value judgements in the debate on partiality and impartiality.

Clearly, Dr Molefe's book is significant for all the reasons cited above, but it is also possible to add one more claim for it. The vision of the University of Fort Hare is to be a 'distinctive African university'. A book drawing on African philosophy to add new perspectives on an age-old debate takes the University one step closer to this noble aim.

VC's Book Award Nominees

Filling a gap to stimulate further research: Small Carnivores: Evolution, Ecology, Behaviour, and Conservation

Professor Emmanuel Do Linh San

Emmanuel Do Linh San is an Associate Professor in the Department of Zoology and Entomology. He obtained his MSc degree (Natural Sciences) in 1997 at the Swiss Federal Institute of Technology (ETHZ) and his DSc degree (Natural Sciences) in 2004 at the University of Neuchâtel, Switzerland. He was a postdoctoral fellow at Walter Sisulu University from 2005 to 2007 and at the University of Pretoria from 2007 to 2008. In August 2008, he took up a position as Senior Lecturer at Fort Hare and subsequently headed the Department of Zoology and Entomology from 2010 to 2013. He was promoted to Associate Professor in January 2014. Professor Do Linh San teaches several courses at undergraduate and postgraduate levels, including Ecology, Behavioural Ecology and Ecological Modelling and has supervised or co-supervised numerous honours, master's and doctoral studies. He has also acted

as an external examiner for courses and dissertations at various universities.

Professor Do Linh San's research activities focus on African small carnivore ecology and conservation. His distinguished publishing record includes numerous scientific articles, book chapters and technical reports as well as popular articles. He has been an associate editor of the *African Journal of Wildlife Research* since 2010, of *Small Carnivore Conservation* since 2010, and *Mammal Study* since 2020. Professor Do Linh San is the vice-coordinator for Africa of the International Union for the Conservation of Nature's Small Carnivore Specialist Group. In 2017, he founded ASCaRIs (www.ascaris.org), a non-profit scientific organisation that aims to promote research and disseminate knowledge on African small carnivores.

Small Carnivores: Evolution, Ecology,

Behaviour, and Conservation edited by Professor Do Lin San together with Jun Sato of Fukuyama University in Japan, Jerrold Belant of Michigan State University and Michael Somers of the University of Pretoria was published in 2022 by Wiley Blackwell. This important collection fills a gap in the scientific literature by drawing together up-to-date knowledge on a group of mammals that received little interest before the 1970s.

Small carnivores are present in almost all ecosystems, playing important regulatory roles by controlling pests, dispersing seeds and cycling nutrients. Although more than one third of all small carnivores are being threatened by extinction, in areas where human activity has reduced numbers of large carnivores, small carnivores become dominant and can threaten biodiversity. The status of small carnivores in ecosystems means that a book that uses the latest research in order to explore their roles is more than overdue.

The book is divided into four main parts: 1) Evolution, Systematics and Distribution; 2) Ecology, Behaviour and Diseases; 3) Interspecific Interactions and Community Ecology; and 4) Interactions with People and Conservation. Although the range of topics addressed in the book suggests that a large amount of knowledge has been acquired on small carnivores, the field of small carnivore science is still wide open. Because of this, the book is an important resource for students and researchers as chapters draw on a wide range of techniques used to study small mammals and also illustrate the varied forms of scientific outputs (reviews, meta-analyses,

project syntheses and original research papers) that current and future small carnivore researchers may be expected to encounter and produce throughout their careers.

According to Professor Do Linh San, an important aim of the book was to stimulate more research globally on the fascinating small creatures on which it reports. It was also hoped that people working with large carnivores and mammals in general would also find this resource of value, as most of the widely tested or cutting-edge techniques described in the book can be successfully applied to other species.

This important edited collection produced by a distinguished Fort Hare researcher shows the ability of a relatively small university located at the foot of the African continent to punch above its weight in contributing to knowledge production at a global level.



Acknowledging rural students' strengths: Rural Transitions to Higher Education in South Africa

Dr Patricia Muhuro



Senior Consultant at the Teaching and Learning Centre, Dr Patricia Muhuro majored in Mathematics and Computer Science Education for her undergraduate studies and taught in several high schools and colleges in Zimbabwe before returning to university to pursue postgraduate work. She holds a Master's degree in Information Communication Technology in Education and a PhD in Education from the University of Fort Hare. Her doctoral study focused on student retention programming.

In the field of Academic Development, she is a scholarly practitioner with research interests in social justice, ICT in Education, student transitions and curriculum. She has been involved in several multi-institutional research projects on professional development and curriculum in South Africa, one of which culminated in one of a series of publications monitoring developments in higher education, published by the Council on Higher Education, entitled *Learning to Teach in South Africa*. Currently, Dr Muhuro is leading a project under the auspices of the Higher Education Teaching and Learning Association of Southern Africa (HELTASA), focusing on researching innovations in curriculum design and delivery in Southern Africa. She is a Teaching Advancement at Universities Fellow and institutional co-ordinator for the Rhodes, Fort Hare, and Queens University Doctoral Support programme, where she mentors research on socio-educational issues in the Eastern Cape.

Rural Transitions to Higher Education in South Africa: Decolonial Perspectives, co-authored by Dr Patricia Muhuro, with Professor Sue Timmis of the University of Bristol in the United Kingdom, Professor Thea de Wet and Dr Kibashini Naidoo of the University of Johannesburg, Professors Sheila Trahar and Lisa Lucas, also of the University of Bristol, Professor Emmanuel Mggwashu of North-West University and Professor Gina Wisker of Brighton University, draws on the lived experiences of learners from rural backgrounds as they move into higher education and engage with the challenges they face in contexts that are very different from those to which they are accustomed. The project on which the book is based drew on student co-researchers to create narratives describing early experiences in rural communities, the way young people negotiate the access to universities, navigate paths through institutional life and curricula and adjust to urban life.

Students from rural backgrounds are often perceived as arriving at universities carrying a burden of 'disadvantage'. In contrast to a great deal of other research, the book focuses not on students' deficits or weaknesses but, rather, on their strengths. In doing this, the book advocates for the adoption of a decolonial perspective which would acknowledge the knowledge and ways of knowing students bring 'from home' as they begin their journey towards a qualification. For the authors, reconceptualising the transition from rural backgrounds to academic life in this way offers a means of achieving the transformation that has proven to be so elusive.

As a university rooted in the Eastern Cape, Fort Hare attracts many young people from rural backgrounds. Dr Muhuro's collaboration with a group of researchers from South Africa and the United Kingdom in order to complete the research and write the book thus acknowledges a significant part of Fort Hare's institutional character and heritage. Even more importantly, by reconceptualising what 'rurality' means for teaching and learning, she has contributed to the realisation of the dreams of many young people who seek to better their life chances by enrolling at a university.



Towards an African Political Philosophy of Needs

Dr Chris Allsobrook and Dr Motsamai Molefe

The book is a welcome and important contribution to African and global thought in relation to needs in political theory. It serves both as an invitation to thinkers in Africa and in the global north to seriously consider perspectives and views from Africa. The global impact of the book is further suggested by the fact that one of the most influential journal in philosophy, *Mind*, will publish a review of this book. Dr. Molefe and Dr. Allsobrook co-authored the Introduction of the book, where they provided the historical context of the book; clarify the content of the book and the general orientation of the book against the idea of human rights in favor of needs. The book demonstrates limitations of the extant literature on human rights and suggests why needs may be relevant in our continued quest for a meaningful political discourse in African political thought.



In his sole-authored chapter, Dr. Molefe argues for the essential status of basic needs in the discourse of personhood (*ubuntu*). Often discussions on personhood pivot on human rights. The chapter argues that a meaningful understanding of personhood in African philosophy ought to recognize basic needs as a prerequisite for the emergence of a robust agency, which is essential for the pursuit and achievement of ubuntu/personhood. In his sole-authored chapter, Dr. Allsobrook draws from his customary conception of human rights to construct a needs-based approach. The argument is that local practices entail a needs-based account that warrants serious consideration in African Philosophy and globally.



Democratising the knowledge system: Decolonisation and South African higher education

Mr Siseko H. Kumalo

Mr Siseko H. Kumalo, is a lecturer in the University of Fort Hare's Philosophy Department and is a Harvard South African Fellowship Programme Alumni 2023. His doctoral study, completed at the University of Pretoria, interrogated belonging and national identity in South Africa. He was a Mandela Rhodes Scholar in 2017 and was listed as one of the Mail & Guardian's Top 200 Young South Africans in 2020 in the category of Education. Kumalo's research and teaching interests centre on the theme of decolonisation in the South African academy, which has progressively developed into what he terms the 'Black Archive'.

His publications include a co-edited collection, *Decolonising Curricula and Pedagogy in Higher Education* published by Routledge, UK. He also co-edited a collection entitled *University on the Border* published by Sun Media Press. Kumalo is an editor at *Theoria: A Journal of Social and Political Theory*, serves on the Editorial Collective of *Stilet*, the *Tydskrif vir Letterkunde* Association as well as the Literary Association of South Africa's Executive Committee.

Another edited collection entitled *Decolonisation as Democratisation: Global Insights into the South African Experience*, nominated for the Vice Chancellor's Scholarly Book Award, was published by the Human Science

Research Council Press in 2021. This important work has its roots in the #RhodesMustFall protests that rocked the South African higher education system in 2015 and 2016 and which resulted in calls for the decolonization of curricula and cultures in universities.

The collection brings together leading scholars from the fields of philosophy and higher education for the purpose of (re)-imagining the university in South Africa. The objective in the book is to move towards understanding what a South African University, not a 'university in South Africa', could be. In keeping with its editor's roots in academic philosophy, the book locates decolonization within a bigger project focused on epistemic justice, or the quest to give credence and status to indigenous knowledges.

Central to the book are what Kumalo terms the 'political contestations of knowledge' and particularly the idea that, in order to gain a qualification that will allow them and their families to move out of the abject poverty that has defined their lives, black knowers need to assume whiteness by subscribing to forms of knowledge and adopting ways of knowing originating in the Global North. Of concern in this process is that the concept of 'academic freedom' can be used to maintain the status quo. Kumalo and fellow authors reject this thinking arguing that decoloniality protects,

rather than challenges, this ideal.

The 'global insights' of the volume's title come from the belief that any consideration of the local context needs to be examined alongside the thinking and writing of scholars from outside the South African academy, an idea realised by Kumalo's bringing together of contributors from Canada, the United States, Germany and the United Kingdom as well as South Africa. Professor Abraham Olivier, Kumalo's colleague in the Department of Philosophy, has contributed a chapter to the book.

As noted elsewhere in this Research Report, Fort Hare's vision is to be a 'distinctive African university'. Kumalo's conceptualisation and editing of the book contributes to understanding what this means in a significant way.



VICE-CHANCELLOR'S SENIOR RESEARCHER AWARDS

Overall Winner:

Professor Graeme Bradley

Professor Graeme Bradley graduated with a PhD in Biochemistry from the University of Port Elizabeth (now Nelson Mandela University) in 1996. He currently holds a C2 NRF rating. His career path has included industrial, clinical, and academic experience, having worked in a veterinary chemical pathology laboratory as well as at a tyre manufacturing plant before deciding to pursue an academic career.

His first academic appointment was in 1999, as a lecturer in the Department of Biochemistry at the University of the Western Cape. In 2003, he was appointed as a Senior Lecturer at Rhodes University where, from 2007 onwards, he held the position of Professor of Biochemistry and Head of Department of Biochemistry and Microbiology. During the last 15 years at the University of Fort Hare he has served as Director of the School of Biological and Environmental Sciences, Deputy

Dean Research and Internationalisation, acting-Dean of the Faculty of Science and Agriculture, Senate representative on Council, acting Director of Planning and Quality Assurance, as well as a chair/member of numerous Faculty and Senate Committees. In 2021, he was appointed Dean of the Faculty of Science and Agriculture.

During his career, Professor Bradley has been exposed to a wide range of research areas. Over the last 20 years, he has specialised in the Biochemistry of plant stress and has successfully established a research group at the University of Fort Hare, studying the resistance mechanism of wheat to the various Russian Wheat Aphid Biotypes. In addition to his research on plant stress mechanisms, he has an interest in understanding the biochemical mechanisms underlying the use of plants in alternative/ ethnomedicine.

Since 2014, he has expanded this work in a project developed in collaboration with the South African Institute for Aquatic Biology (SAIAB). With Professor Niall Vine, also of Fort Hare, he was successful in securing R5.4m of funding to establish a Marine Laboratory at Fort Hare. The Laboratory operates as a joint venture of the Department of Science and Innovation, the SAIAB and the University of Fort Hare.

Professor Bradley has supervised a large number of Honours, Master's and doctoral graduates to successful completion. He has published extensively and has 71 research articles and one book chapter to his name. He serves as an external examiner of postgraduate theses as well as on National Research Foundation Review Panels.



Faculty of Education Winner:

Professor Vusi Mncube

Vusi Mncube is Professor and Dean of the Faculty of Education at the University of Fort Hare. His research focuses on good governance, with a special focus on school governance, democracy and education, and democracy for education and social justice. Within the area of governance and democracy, he has published a number of research articles in reputable academic journals and has supervised a number of Master's and doctoral studies to completion.

Professor Mncube is also an expert on violence in schools, having published several research reports, journal articles and a book, *Violence in Schools: South Africa in an International Context (2017)*, co-authored with

Professor Clive Harber of the University of Birmingham in the UK and Adjunct Professor at University of Fort Hare. The first edition of this book won the prestigious Hiddingh-Currie Award at UNISA in 2018. A second edition was published by UNISA Press in 2023, evidence of the book's impact.

In 2012, Professor Mncube also co-authored another book with Professor Harber entitled *Education, Democracy and Development: Does Education Contribute to Democratisation in Developing Countries?* In the same year, again with Professor Harber, he co-authored a UNISA report entitled *The Dynamics of Violence in South African Schools*, which was published by UNISA Press. In response to the Covid-19 pandemic, Prof Mncube authored a number of articles looking at the integration of ICTs in teaching and learning in higher education institutions. He serves as a reviewer for a number of national and international journals and has examined various theses and dissertations from various universities and other countries.

Faculty of Law Winner:

Professor Arthur van Coller

Arthur van Coller is an associate professor in the Faculty of Law, where he lectures on Tax Law and Research Methodology. He also teaches for the Pretoria Regional Delegation of the International Committee of the Red Cross.

Professor van Coller's main research interests lie in the areas of direct participation in hostilities, weapons law, the protection of the civilian population during armed conflict, and children's rights. Before taking up an academic position, he was a legal practitioner for 15 years. He holds a BA (Law), LL.B, LL.M and HDipTax from the University of Johannesburg, a PGDHET from the University of Fort Hare, and an LL.D (International Humanitarian Law) from the University of Pretoria. He is a Senior Fellow of the Advance HE Professional Standards Framework in the United Kingdom and a Teaching Advancement at Universities (TAU) Fellow in South Africa.



Faculty of Management and Commerce Winner:

Professor Tendai Chimucheka

Professor Tendai Chimucheka holds a Doctor of Commerce degree, a Master of Commerce in Business Management, a Postgraduate Diploma in Higher Education and Training, a Bachelor of Commerce Honours degree and a Bachelor of Commerce in Business Management and Economics (awarded cum laude) from the University of Fort Hare.

He was appointed as a lecturer in the Department of Business Management in 2013 and promoted to a senior lecturer position in 2019. He then achieved the rank of Associate Professor in 2022. Professor Chimucheka is the Deputy Head and Postgraduate Coordinator for his department. He also served as the University of Fort Hare's coordinator for the Entrepreneurship Development in Higher Education initiative, launched under the auspices of the Department of Higher Education and Training and Universities South Africa (USAf) from 2017 to 2022.

Professor Chimucheka's research interests include Entrepreneurship and Small Business Management, Human Resources Management, Strategic Management and other areas in the field of Business Management. He has supervised

two PhD students, 10 Master's students and 29 Honours students to completion. He has presented 26 papers at local and international conferences, most of which were subsequently published in accredited journals. To date, Prof Chimucheka has 30 journal articles in peer reviewed and accredited journals, five conference papers in peer reviewed conference proceedings, and a book chapter to his name.

Professor Chimucheka has been awarded and has successfully managed internal and external research grants from the National Research Foundation, the National Institute for the Humanities and Social Sciences and the University of Fort Hare. He also reviews extensively for local and international journals and is a member of the Southern African Institute of Management Scientists, the African Network of Social Entrepreneurship Scholars, and the Entrepreneurship Development in Higher Education Community of Practice for Entrepreneurship Research.

In 2019, Professor Chimucheka was awarded the Vice Chancellor's Excellence Award for the Faculty of Management and Commerce in the Emerging Researcher Category. He is currently working on a project evaluating the impact of government social protection and economic interventions in response to the Covid-19 pandemic in the King Cetshwayo District Municipality, and another exploring entrepreneurship amongst women in the Eastern Cape.

Faculty of Social Sciences and Humanities Winner:

Dr Christopher Allsobrook

Christopher Allsobrook, Director of the Centre for Leadership Ethics in Africa at the University of Fort Hare, is leader of the Social Sciences and Humanities Research Niche Area, 'African Liberation in Citizenship and Society'. He is an associate editor of *Theoria* and the *South African Journal of Philosophy*. His research, in African political theory and ethics, intellectual history, and critical theory, examines contested conceptions of rights, colonialism, land reform, ideological legitimization, and critique.

Recent publications include a chapter, co-authored with Dr Camilla Boisen of New York University in Abu Dhabi, entitled 'The Border of Trust at Kat River for Coloured Settlers, 1851–1853' in an edited collection, *Decolonisation: Evolution and Revolution*, published by Wits University Press 2023 and an article, written with doctoral candidate Thozamile Mtyalela, entitled 'Freedom from Black Governmentality under Privatized Apartheid', in a special issue of *Philosophical Papers* published in 2022.

Another recent publication is Dr Allsobrook's article 'African Recognition of Dignity as a Basis for Universal Human Rights', published in *Acta Academica* in 2023, which also appeared as a chapter in a collection he co-edited with Professor Motsamai Molefe, also of Fort Hare, entitled *An African Communitarian Conception of Dignity in Mutual Recognition*, published by Palgrave Macmillan earlier this year.

VICE-CHANCELLOR'S JUNIOR RESEARCHER AWARDS

Overall Winner:

Dr. Hlengiwe Gwebu

Dr Hlengiwe Gwebu is a Senior Lecturer in the Department of Public Health and acting Deputy Dean in the Faculty of Health Sciences at the University of Fort Hare. She has extensive experience as an educator, mentor, child health activist, and researcher. Dr Gwebu is dedicated to making a positive impact on vulnerable populations and empowering individuals through her extensive research efforts.

Currently, she is co-leading the ParentText optimisation and evaluation study in South Africa as part of the Global Parenting Initiative and leads several research projects including those conducted by the HIV/AIDS Research Group at the University of Fort Hare. Her research interests include Family Strengthening Interventions, Maternal, Child and Adolescent Health and Rights, and Policy and Advocacy in the Global South. As a result of her work in these areas, and true to her roots as an academic at Fort Hare, Dr Gwebu endeavours to promote social justice and improve the wellbeing of communities.



Faculty of Law Winner:

Seroné Stal

Seroné Stal is a lecturer in the Faculty of Law at Fort Hare. Her research interests lie in Criminal and Labour Law. She holds LLB and LLM Degrees from North-West University.

Ms. Stal acts as an external examiner of LLM degrees and as moderator of assessment in other programmes. She also reviews for highly regarded journals such as the *Journal of Law, Society and Development* and the *Potchefstroom Electronic Law Journal*. Her commitment to academic excellence is seen in her membership of the prestigious Golden Key International Honour Society, the world's largest collegiate honour society, with links to 400 universities across the world.



Faculty of Management and Commerce Winner:

Dr Juliet Puchert-Townes

Dr Juliet Townes, Head of the Department of Business Management, joined the University of Fort Hare in 2009. She was awarded a Master's degree in Industrial Psychology by Fort Hare in 2014 and went on to complete a PhD in Industrial Psychology at Nelson Mandela University in 2019.

Dr Townes' research focuses on recruitment and selection, leadership, and emotional intelligence. To date, she has published eight journal articles, and six papers in conference proceedings. She has also presented seven work-in-progress papers at national conferences. This year, she has an additional journal article under final review and is awaiting the publication of the three papers she has presented at conferences.

Dr Townes leads an international research project investigating recruitment and selection trends. There are currently seven participants in this project, five from South African universities, one from another African university and one from a university in the USA. The project involves members collecting data in their respective areas and then collaborating on a comparative study on the findings before publishing jointly.



Faculty of Science and Agriculture Winner:

Dr Yeshona Sukai

Dr Yeshona Sukai graduated with a PhD degree in Microbiology from the University of KwaZulu-Natal in 2018 and pursued postdoctoral research from 2018 to 2021 at the same institution. During her postdoctoral fellowship, she co-supervised postgraduates at Honours, Master's and doctoral levels. Dr Sukai was appointed as a senior researcher in the Fort Hare Institute of Technology in July 2021.

Dr Sukai's research focuses on microbial bioprocess technology with an interest in the biorefinery of agricultural and industrial wastes for the production of biofuels and bioproducts. She is also interested in the application of artificial intelligence in bioprocess development and nanobiotechnology. Her research has attracted funding from the National Research Foundation and she continues to train South African and international postgraduate students in the field of microbial bioprocessing. To date, Dr. Sukai has produced 27 publications in high impact factor international peer-review journals and books. The impact of her work is seen in the fact that it has been cited more than 800 times.

Dr Sukai was awarded a Y2 NRF rating, effective from 1st January 2022, and was recognised as the youngest NRF-rated researcher at Fort Hare in March 2022. Dr. Sukai was the recipient of the 2022 Vice Chancellor's Excellence award in recognition of her NRF rating.



VICE-CHANCELLOR'S RESEARCH INNOVATION AWARDS

Winner of the Most Innovative Prototype Developed Medal

Gloria Aderonke Otunola

Gloria Aderonke Otunola is a Senior Research Fellow and Co-Leader of the Medicinal Plants and Economic Development Research Niche Area (MPED-RNA), University of Fort Hare, South Africa. She received her PhD in Biochemistry from the University of Ilorin, Nigeria in 2011. She is a Functional Food Scientist and a South Africa National Research Foundation (NRF) C2 rated Researcher. Her research focus is on applied biochemical, nutritional and pharmacological elucidation and translation of medicinal plants and foods, as well as control strategies for the prevention and treatment of malnutrition, communicable and non-communicable diseases, especially

diabetes, obesity and cancer. She lectures/teaches and supervises students at undergraduate and postgraduate levels and writes proposals for grants and funding. Her current research focus is the development of functional food products for malnutrition and chronic diseases, some of which are undergoing IP and Patenting processes. She is also researching the development and functionality of Bio-nanoparticles for the management of chronic diseases. Dr Otunola is an excellent mentor and is involved in collaborations at national and international levels. Her current innovation is "An Innovative Novel Functional Tea for Hypertension, Diabetes and Immunity". This tea has the capacity to promote an active immune system, which can protect against COVID-19 infection and has potential to modulate hypertension and diabetes and can be used as a therapeutic adjuvant for other chronic diseases. The innovation is at an advanced stage as prototypes of the tea have been developed.

Winner of the Most Innovative Research Medal

Prof Ulene Schiller

Prof Ulene Schiller is an associate professor in Social Work whose research niche area falls within Child Protection and Innovation. The ongoing research project, "Advancing Child Protection Services in South Africa," demonstrates a commitment to addressing various challenges within the country's child protection system. The initiative is characterised by thorough exploration and collaboration with social workers and agencies, aiming to pioneer innovative solutions to enhance the efficiency and effectiveness of service delivery in the Child Protection sector. Notably, the collaboration with the Technology Innovation Agency (TIA) highlights a unique integration of academic research and technological innovation. The project's potential impact goes beyond academia, offering significant improvements in the child protection system and ultimately contributing to the well-being and future prospects of numerous children across South Africa. The development of the Integrated Child Protection App stands as

a transformative innovation with potential societal benefit and commercial viability, showcasing the impactful confluence of research, social improvement, and economic growth.

RESEARCHERS NEWLY NRF-RATED IN 2023



Dr Chinedu C. Ahia
Faculty of Science and Agriculture
Department: Fort Hare Institute of Technology
NRF rating category: Y

Dr Chinedu Christian Ahia obtained his Doctor of Philosophy degree in Physics from Nelson Mandela University in 2018 with a special research focus on nano-photonics, nanomaterials design, development and characterization. He is currently a Research Fellow at the Fort Hare Institute of Technology, where he spearheads the operation of, and training on, a state-of-the-art confocal Raman/AFM microscope.

He has received several funding awards including a Nelson Mandela University Postgraduate Research Funding Grant, an award from the South African National Research Chair Funding for Doctoral studies, an award from the African Institute for Mathematical Science (AIMS) South Africa PhD Fund, funding from the AIMS-South Africa Master's Degree Funding Scheme and a National Research Foundation (NRF) Scarce Skills Postdoctoral Fellowship Funding Grant.

Dr Ahia is a member of the South African Institute of Physics (SAIP) as well as of other professional bodies. He is a Co-Investigator of the Photovoltaic Spoke at the University of Fort Hare which is funded by the South African Department of Science and Innovation (DSI) under its National Energy Research Programme (ERP). His current research is focused on exploring cost effective techniques to fabricate new materials for optoelectronic device applications, the optimization of performance, and tailoring the unique attributes of these materials to specific properties of choice.

Dr Ishmael Festus Jaja
Faculty of Science and Agriculture
Department: Livestock and Pasture Science
NRF rating category: Y

Dr. Ishmael Festus Jaja obtained his Doctor of Veterinary Medicine (DVM) degree from the University of Nigeria, Nsukka in 2010. He also holds a Master's degree and a Doctorate in Animal Science degree from the University of Fort Hare. He currently teaches animal health modules in the Department of Livestock and Pasture Science, where he is also the Head of Department. Dr Jaja also serves as a Deputy Director (Academic) for the French South African Agricultural Institute.

Dr. Jaja's research focuses on meat safety in the formal and informal sectors. Using various molecular diagnostic tools, potentially pathogenic bacteria in meat capable of causing foodborne outbreaks of disease are identified. Dr Jaja's work also involves characterizing virulence markers and resistance genes associated with microorganisms in order to identify patterns in their resistance to antimicrobial drugs.



Professor Ahmed Mukalazi Kalumba
Faculty of Science and Agriculture
Department: Geography and Environmental Science
NRF rating category: C3

Ahmed Mukalazi Kalumba is an Associate Professor in the Department of Geography and Environmental Science at the University of Fort Hare. He holds a PhD in Environment and Society from the University of Pretoria. He is a former Head of the Department and is the founding Head of the Geospatial Application, Climate Change and Environmental Sustainability Laboratory, a position he continues to hold.

His current research contributes to environmental sustainability by focusing on, amongst other things, Industrial Sustainability, Change Detection, Remote Sensing, Risk and Adaptation, Urban and Coastal, SDGs and Climate Change under the realm of ecological sustainability and human well-being.

Professor Kalumba is currently pursuing multidisciplinary research ensure sustainable ecosystem functioning and well-being at national and international levels. This research is based on transformative and co-production approaches for promoting sustainable environmental solutions and sustainable development.

Professor Kalumba is a holder of the University of Fort Hare's Vice-Chancellor's Research Excellence Award, was an overall winner in the Emerging Researcher Awards in 2021 and a finalist in the 2021/2022 National Science and Technology Forum (NSTF) -NSTF-South32 Awards.





Dr Johannes Zanoxolo Mbese
Faculty of Science and Agriculture
Department: Chemistry
NRF rating category: Y2

Dr Johannes Zanoxolo Mbese is a chemist with a PhD from the University of Fort Hare gained in 2017. Dr Mbese is founder and leader of the Energy, Materials and Inorganic Chemistry Research Group. His research interests are in the synthesis of metal sulphide nanoparticles/nanocomposites, metal oxides, carbon quantum dots and carbon nanotubes for applications in nanotechnology, chemical sensing, water treatment and renewable energy. Dr Mbese's research work is supported by an NRF Thuthuka Grant. He was also awarded an institutional research grant from the Govan Mbeki Research and Development Centre and another award from the Tertiary Education Support Programme, funded by ESKOM. He was nominated to participate in a prestigious Future Professors Programme running between 2020 and 2023.

Dr Mbese served as Head of Department of Pure and Applied Chemistry at the University of Fort Hare from 2019-2020 and is currently serving as primary representative for the Faculty of Science and Agriculture and secondary representative for the Faculty of Social Sciences & Humanities in the Inter-Faculty Research Ethics Committee.



Professor Werner Nel
Faculty of Science and Agriculture
Department: Geography and Environmental Science
NRF rating category: C1

Professor Werner Nel is a Professor in Physical Geography in the Department of Geography and Environmental Science at the University of Fort Hare. He is rated C1 by the NRF and is the Chair of the Terrestrial Long-term Observation Forum for the South African Polar Research Infrastructure. He is a member of the South African National Committee and the South African delegate for Geosciences at the international Scientific Council for Antarctic Research (SCAR).

Professor Nel has been actively involved in the South African National Antarctic Programme (SANAP) since 1999, and is the Principal Investigator of a NRF/SANAP funded project: Landscape and Climate interactions in the sub-Antarctic.

Professor Abraham Olivier
Faculty of Social Sciences and Humanities
Department: Philosophy
NRF rating category: B3



Professor Abraham Olivier is Professor of Philosophy at the University of Fort Hare, Visiting Professor at the University of Bayreuth, Co-Founder and Co-Chair of the Centre for Phenomenology in South Africa and former Editor-in-Chief of the South African Journal of Philosophy.

Professor Olivier obtained his PhD from the University of Tübingen and has held lecturing and research posts at the Universities of Tübingen, Stellenbosch, Padua and the Evangelical University for Social Work, Hamburg. He is the author of Being in Pain, published by Peter Lang, main editor of the anthology Phenomenology in an African Context, published by State University of New York Press and editor/co-editor of several special journal issues for journals such as The Southern Journal of Philosophy, the International Journal of Philosophical Studies, the Journal of the British Society for Phenomenology, Angelaki, and Theoria. He has also published numerous peer-reviewed articles and book chapters on topics relating phenomenology, philosophy of mind and African philosophy.

Dr Ochuko Kelvin Overen
Faculty of Science and Agriculture
Department: Fort Hare Institute of Technology
NRF rating category: Y



Dr Ochuko Kelvin Overen obtained a BSc degree in Industrial Physics from Enugu State University of Technology in Nigeria. He then joined the University of Fort Hare in 2011, where he acquired a BSc Hons degree in Physics, a MSc and a PhD in Physics, focusing on thermal energy efficiency in the built environment. In 2022, Dr Overen completed a second master's degree in urban studies at the University of the Witwatersrand, where he studied Sustainable Energy Efficient Cities.

After his Doctorate, he won National Research Foundation (NRF) Innovation Fellowship Awards consecutively in 2019/20 and 2021/22. Currently, he is the principal investigator of the Eskom-funded initiative for Renewable Energy and Economic Development (FREED) and co-investigator in the Eskom Research, Testing and Development in Renewable Energy Technologies Chair at the University of Fort Hare. To date, Dr Overen has over 20 scientific research publications with more than 170 citations. He is a member of the South African Institute of Physics (SAIP) and the Southern African Energy Efficiency Confederation (SAEEEC).

Dr Overen reviews for several international and local scientific journals such as Applied Energy, Renewable and Sustainable Energy Reviews, Indoor and Built Environment, and Journal of Energy in Southern Africa. He is also a member of the NRF research grants virtual peer review panel.



Professor Munacinga Simatele
Faculty of Management and Commerce
Department: Economics
NRF rating category: C2

Professor Munacinga Simatela is an Economist with a PhD from the University of Gothenburg in Sweden. Professor Simatela engages in transformative research focusing on the macro and micro economic aspects of financial development, poverty and marginalisation. She is interested in developing deeper understandings of finance for development and the way the poor interact with the financial sector. This involves research on how financial markets can be harnessed to positively influence livelihoods and small and micro businesses for poverty alleviation.

Professor Simatela has practical experience of leading large scale research projects and providing consulting and technical services and support to different organisations. She also has a strong interest in pedagogical research and applied teaching methods and has published in this area. She serves as an external examiner for various universities and regularly reviews for peer reviewed journals. Her teaching has primarily been in postgraduate macroeconomics with a focus on monetary economics, financial economics and money markets.



Professor Paul Douglas Sumner
Faculty of Science and Agriculture
Department: Geography and Environmental Science
NRF rating category: C2

Professor Paul Sumner, Head of the Department of Geography and Environmental Science, studied for a BSc at the former University of Natal (UN) majoring in geography and chemistry. After completing a Higher Diploma in Education, he went on to do an honours degree and a master's degree in geography.

Professor Sumner took up his first academic position as a temporary lecturer at Fort Hare, a post he held for two years before moving to a lectureship at the University of Pretoria in 1997. Whilst at Fort Hare, he conducted research on palaeo-landforms in the Amatola and then moved to working on landforms in Lesotho for his doctoral degree at the University of Pretoria.

Professor Sumner also has an interest in rock weathering processes and studied these on Marion Island and in the Drakensberg. After working on projects in the sub-Antarctic, his interest shifted to erosion phenomena in Mauritius. He returned to the University of Fort Hare in 2019, where he continues to research in the field of erosion. To date he has supervised 30 master's and doctoral candidates to completion and published 54 journal articles.



Research Outputs for 2022

The research outputs listed in this report are for the year 2022, which were captured, verified, and submitted to the Department of Higher Education and Training (DHET) in 2023. The research outputs are still being reviewed by the DHET and the outcome of the review process will be released by the DHET in 2024.

Journal articles

Adeniji O; Nontongana N; Okoh A; Okoh J (2022): The Potential of Antibiotics and Nanomaterial Combinations as Therapeutic Strategies in the Management of Multidrug-Resistant Infections: A Review: *International Journal of Molecular Sciences*, 23(15038).

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Aderibigbe B (2022): Hybrid-Based Wound Dressings: Combination of Synthetic and Biopolymers: *Polymers*,14.

Aderibigbe B; Anusionwu C; Adeyemi S; Ubanako P; Oselusi S; Choonara Y; Mbianda X (2022): Novel ferrocenylbisphosphonate hybrid compounds: synthesis, characterization and potent activity against cancer cell lines: *Bioorganic and Medicinal Chemistry*, 58.

Adjogri SJ; Meyer EL (2021): Chalcogenide Perovskites and Perovskite-Based Chalcogenides as Photoabsorbers: A Study of Their Properties, and Potential Photovoltaic Applications. *Materials*,14(7857)

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Adu OE; Damoah B. (2022). Environmental Education in South African Schools: The Role of Civil Society Organizations. *Research in Social Sciences and Technology / RESSAT*,7(3)

Adu OE; Olowu R. (2022). De-colonising global citizenship education for knowledge sharing and acceptable norms in Nigeria. *International Journal of Research In Business and Social Science / IJRBS*,11(6)

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Adu OE; Zondo S. (2022). Chronicling teacher's experiences in the teaching of economics in the Covid-19 era. *International Journal of Research In Business and Social Science / IJRBS*,11(8)

Afolayan AJ;Lungu N; Idamokoro M (2022).Warmed-over flavour profiles, microbial changes, shelf-life and check-all-that-apply sensory analysis of cooked minced pork treated with varying levels of *Moringa oleifera* leaf and root powder. *Heliyon*,8

Afuape OA; Buwa-Komoreng L; Afolayan AJ (2021): Proximate, Vitamins, Minerals and Anti-Nutritive Constituents of the Leaf and Stem of Helichrysum odoratissimum (L.) Sweet: A Folk Medicinal Plant in South Africa. *International Journal of Plant Biology*,13.

Afuye GA; Kalumba A; Busayo E; Orimoloye R (2022): A bibliometric review of vegetation response to climate change: *Environmental Science and Pollution Research*, 29.

Agoro MA; Meyer EL (2022): FeS/FeS₂ nanoscale structures synthesized in one step from Fe(II) dithiocarbamate complexes as a single source precursor: *Frontiers in Chemistry*, 10.

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Ajibade S; Mnkeni PNS; Manyevere A; Mupambwa HA (2021): Vermicompost Amended With Rock Phosphate as a Climate Smart Technology for Production of Organic Swiss Chard (Beta vulgaris subsp.vulgaris): *Frontiers in Sustainable Food Systems*,6.

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Akinmoladun FE. (2022). Effect of processing methods on chemical and nutrient composition of Bamboo (Bambusae arundinacea) LEAVES. *Journal of Animal and Plant Sciences-JAPS*,32(2)

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Aladejana E; Mohammadi A; Anukam A; Granstom K; Eskandari S; Zywalewska M; Sandberg M (2022): Effects of wood ash on physicochemical and morphological characteristics of sludge-derived hydrochar pellets relevant to soil and energy applications: *Biomass and Bioenergy*, 163(2022).

Aliber M; Loki O; Sikwela M (2021): Assessment of socio-economic characteristics that determine farmers’ access to agricultural extension services in Eastern Cape, South Africa: *South African Journal of Agricultural Extension*,49(1).

Alimi OA; Meyer EL; Olayiwola O (2022): Solar Photovoltaic Modules’ Performance Reliability and Degradation Analysis—A Review: *Energies*, 15(16).

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Badaru KA; Adu OE. (2022). Platformisation of Education: An Analysis of South African Universities' Learning Management Systems. *Research in Social Sciences and Technology / RESSAT*,7(2)

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