REIMAGINING HEALTH

SUMMATIVE REPORT

ANNUAL REPORT 2021/2022

saMRC advancinglife

A NOTE FROM THE PRESIDENT AND CEO

Building a vibrant research organisation looking into the next 50 years!

When we celebrated 50 years of research and excellence in 2019, we also looked towards the SAMRC of the future, how the organisation would continue to influence science and policy, by making an impact and supporting the National Department of Health in improving the quality of lives of South Africans.

Through research, development, and technology transfer, the SAMRC responds to South Africa's quadruple burden of disease with the intramural units prioritising research into the 10 most common causes of morbidity and mortality and associated risk factors. The COVID-19 pandemic has also impacted on our ability to focus on South Africa's colliding epidemics.

Since the onset of the pandemic, the SAMRC has been at the forefront of the COVID-19 response, a total of around R250M was allocated to COVID-19 funding by March 2021, with the Department of Science and Innovation (DSI) contributing R65.7M by March 2021 and allocating an additional R81M in the 2021/22 financial year.

The SAMRC has also led significant studies on the pandemic and the Johnson & Johnson vaccine. Under South Africa's Sisonke programme, a real-world phase 3B implementation study, 496 424 South African health care workers received a first dose of the lifesaving vaccine. In late 2021, under the Sisonke Booster programme (Sisonke 2) 230 488 health care workers received a second dose of the vaccine.

The single dose Johnson & Johnson COVID-19 vaccine demonstrated effectiveness against severe COVID-19 disease and death post-vaccination, and against both Beta and Delta variants of concern. In addition to Sisonke, the research teams conducted two additional studies, called ENSEMBLE 1 and 2, on the efficacy of the Johnson & Johnson Ad26.COV2.S vaccine in relation to a single and two-dose regimen. The results of the ENSEMBLE 2 study clearly demonstrated improved vaccine efficacy of a two-dose regimen of Ad26.COV2.S (Johnson & Johnson) vaccine given 2 months apart.

To understand the impact of the pandemic on mortality, our Burden of Disease Research Unit has provided to the National Department of Health and the public data on Excess Deaths. The Report on Weekly Deaths in South Africa provides information on both natural (diseases and other medical conditions), and unnatural deaths (injuries) registered on the national population register. The SAMRC has been tracking mortality for decades, and this system has enabled South Africa to be one of the few middle-income countries able to track excess deaths associated with the COVID-19 pandemic.

The better understanding of genetics and disease will enable the SAMRC to harness the science of genomics for personalised medicine, and to respond to emerging and future pandemics. The SAMRC has developed key collaborations leading to the first Genomics Institute in Africa, the Cochrane African Network, and the BRICS TB Research Network. Now, the Network for Genomic Surveillance in South Africa (NGS-SA) has been launched, a Network of laboratories, scientists and academic institutions that have joined forces to rapidly respond to public health threats in South Africa (refer to Achievements and Highlights section on the NGS-SA).

Early warning systems for COVID-19 are also an integral part of responding to the pandemic, the SAMRC Wastewater Surveillance Programme has been rolled out at more than 80 wastewater treatment plants, across 6 provinces, namely Western Cape, Eastern Cape, Gauteng, Limpopo, Free State and KwaZulu-Natal, servicing an

estimated 4 million people. Wastewater results are distributed to public health officials in all provinces on a weekly basis.

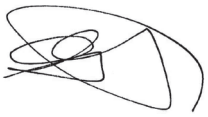
These programmes and achievements would not be possible without the cutting-edge research of our scientists. To this end, we are looking towards a transformed SAMRC by intentionally strengthening our intramural programme and funding streams through the Research Capacity Development programmes and platforms.

We have announced winners of our Intramural Unit Early to Mid-Career Flagship awards, whose strategic aim is to address important health challenges in South Africa through research projects that will substantially advance knowledge of key health problems and their drivers and to improve health outcomes.

We remain committed as the SAMRC to supporting the National Department of Health in their endeavour of creating a healthier and better life for all South Africans. One which would not be possible without the support of the Minister of Health Dr. Joe Phaahla, researchers, and corporate support divisions at the SAMRC, research platforms and partner institutions and collaborating centers, who all support the mission of the SAMRC.

Let's stay the course, looking into the SAMRC of the future!

Sincerely



PROFESSOR GLENDA E GRAY
PRESIDENT & CEO: SAMRC

ACHIEVEMENTS AND HIGHLIGHTS DURING THE REPORTING PERIOD

The SAMRC remains committed to our mandate of improving the health of all South Africans and continues with our endeavour in producing excellent results. The following are some of the organisation's key highlights and achievements:

REIMAGINATION OF TRANSFORMATION AT THE SAMRC

The South African Medical Research Council is Reimagining Transformation drawing from its Transformation Strategy of 2017 – 2021, which yielded positive shifts toward ensuring that the population distribution within the organisation mirrors that of our country or provinces. We have demonstrated increases in the proportion of Black Africans employed in professional, technical, and semi-skilled categories, and women count more than half of the SAMRC community. An important focus going forward is a strategy of increasing the proportion of Black people in senior management and leadership positions – this will form our primary focus of the 2022 – 2026 Transformation Strategy currently being finalised.

SAMRC'S WASTEWATER SURVEILLANCE & RESEARCH PROGRAMME

The South African Medical Research Council's Wastewater Surveillance and Research Programme (SAMRC WSARP) has been tracking SARS-CoV-2 viral RNA in wastewater across 80+ wastewater treatment plants in the Western Cape, Eastern Cape, Limpopo, Gauteng, Free State and KwaZulu-Natal provinces of South Africa. To date, the trends of SARS-CoV-2 in wastewater have been used as an indicator of COVID-19 presence in communities and contribute to the management of COVID-19.

NETWORK FOR GENOMIC SURVEILLANCE IN SOUTH AFRICA

The Network for Genomic Surveillance in South Africa (NGS-SA) is a network of laboratories, scientists and academic institutions that have joined forces to rapidly respond to public health threats in South Africa, launched with 5 of the largest National Health Laboratory Service labs with funds from the Department of Science and Innovation (DSI) and SAMRC. The Network monitors the emergence and spread of new SARS-CoV-2 variants to inform a rapid response, working with the international science community to trace the movement of SARS-CoV-2 across countries. The NGS-SA also works with immunologists to evaluate the protection vaccines afford against the variants detected and the implications for vaccine rollouts. The Network is advancing scientific excellence in South Africa and in Africa, with more than 44 NGS-SA publications and pre-prints to date.

SUPPORTING SURVEILLANCE THROUGH INNOVATIVE TOOLS

The Hyrax Biosciences Exatype software, originally developed to analyse data on HIV drug resistance with support from the SAMRC and DSI, was adapted to enable automatic SARS-CoV-2 variant typing on sequence data. Utilisation of the software does not require bioinformatics experience, provided that adequate user training is administered. Exatype integrates directly with DNA sequencing machines, searches sequenced data for genetic features and translates these observations into clinically actionable reports. Exatype is used for routine genomic surveillance and has been used by SA public institutions to analyse >14,500 genomes (80% of SA SARS-CoV-2 genomes publicly available in GISAID). These outputs have been used to inform the South African government's response to the emergence and dominance of the Delta variant.

mRNA TECHNOLOGY TRANSFER HUB

The objective of the technology transfer hub is to build capacity in low- and middle-income countries to produce mRNA vaccines through a centre of excellence and training. The Vaccine Hub will share technology and technical know-how with local producers. The Vaccine Hub and its partners creates a global common good for the benefit of all by providing a range of services along the entire vaccine value chain. The Hub is located at Afrigen, Cape Town, South Africa, and works with a network of technology recipients in low- and middle-income countries.

CHAN SOON-SHIONG FOUNDATION AND SAMRC SCHOLARSHIP PROGRAM

The SAMRC is partnering with the Chan Soon-Shiong Foundation on an ambitious program to build a vaccine manufacturing workforce. The Chan Soon-Shiong

Foundation is committing R100M over 3-5 years, which, together with a contribution from the SAMRC, will be used to train technical experts to work in a commercial biomanufacturing environment, including in laboratory science, process engineering and quality assurance. The program is currently in development with various academic institutions and other organisations.

NHI EVIDENCE-INFORMED PLANNING AND IMPLEMENTATION

The NHI Bill currently sets out a specific two phased timeline for implementation (sections 57(1) and 57(2)) and the SAMRC has submitted comments to the parliamentary committee on health. The SAMRC supports the stepwise, resource-informed approach outlined in the Bill. NHI decisions should be evidence-based and partners such as the SAMRC are well placed to provide support for the conduct of relevant research.

The Government Pilot projects, as already conducted, are valuable. The SAMRC suggested that implementation steps be piloted, evaluated, and readjusted using research methods. Regular stakeholder engagement for example participatory decision-making with relevant stakeholders affected by decisions is important. This includes consultation with the public and providers at all levels of the health system.

GENOMIC RESEARCH APPROACH FOR DIVERSITY AND OPTIMISING THERAPEUTICS

A Framework agreement was signed on 3 February 2020 for a 4-year programme with GSK and Novartis, managed by the SAMRC. The primary focus of Project Africa GRADIENT will be to evaluate genetic diversity as the contributing factor to the way patients on the African continent respond to drugs used to treat malaria and tuberculosis. SAMRC is managing the programme on behalf of the funders for a service fee. The SAMRC launched an Africa-wide request for applications in African Pharmacogenetic Diversity on 18 January 2021. The programme, which is worth approximately R50M over 4 years, completed the pre- and full-proposal phases in 2021/22 and awards will be finalised in the next financial year.

MEDICAL DEVICE AND DIAGNOSTIC INNOVATION CLUSTER

Hosted by the SAMRC under the Global Health Innovation Accelerator and funded by the Technology Innovation Agency for 3 years, the Medical Device and Diagnostic Innovation Cluster (MeDDIC) was officially launched in March 2021. It aims to strengthen the medical devices and diagnostics innovation ecosystem in South Africa through a cluster-based approach.

GLOBAL CLINICAL TRIAL REPORTING GUIDELINES AMIDST THE COVID-19 PANDEMIC

Since the emergence of COVID-19, many therapeutic trials were suspended, others revised and altered, and some stopped entirely. The SAMRC was part of a global initiative seeking to improve the transparency, quality, and completeness of reporting of trials and trial protocols affected by the pandemic.

GENDER AND HEALTH

The SAMRC continues to reiterate its vital contribution to improving the health status and quality of life of women in South Africa by conducting high quality scientific research and leading dialogue on violence against women and how we can more effectively fight against the scourge of GBV.

HIV PREVENTION

For more than five decades, the SAMRC has been at the forefront of cutting-edge research and innovation to tackle the HIV epidemic – from prevention of HIV infection from mother-to-child to the development of newer and safer drug regimens, and the health service delivery of antiretroviral treatment. These include the PrEPVacc HIV Prevention Vaccine clinical trial and an experimental HIV vaccine not effective in preventing HIV acquisition no safety concerns identified.

SAVING LIVES THROUGH VACCINES

Mobile COVID-19 Vaccine Project

In its continued efforts to support the country in ramping up its COVID-19 vaccination drive, the SAMRC in collaboration with the Chan Soon-Shiong Foundation launched the Mobile COVID-19 Vaccine Project. The project commenced on Tuesday, 6 July in Lusikisiki, Eastern Cape.

Sisonke: solutions to save lives

Between 17 February and 17 May 2021, the SAMRC together with the National Department of Health, Desmond Tutu Health Foundation, CAPRISA and Johnson and Johnson, provided early access to the Ad26COV2.S vaccine (commonly referred to as J&J) to health workers. In total 496 424 health workers received a dose of this vaccine as part of a Phase 3B study to evaluate its effectiveness in South Africa at a time when there were concerns as to whether vaccines work well against variants of concern.

- The single-dose regimen has provided the backbone of campaigns for other essential workers like educators and members of the South African Police Service, and those who live in more rural locations.

- The Sisonke study offered protection to health care workers four months ahead of the national roll-out and ahead of the Delta driven third wave.

THE NEXT STUDY: A NOVEL 6-MONTH TREATMENT REGIMEN FOR MULTI-DRUG-RESISTANT TUBERCULOSIS (MDR-TB)

A study funded by the South African Medical Research Council (SAMRC) as part of a number of flagship projects, has revealed that a novel all-oral super-short six (6)-month treatment regimen is effective for multi-drug-resistant tuberculosis (MDR-TB).

SAMRC BIOINFORMATICS UNIT ROLLS OUT DATA ANALYTICS TRAINING FOR GENOMIC SURVEILLANCE TO SUPPORT THE SADC REGION

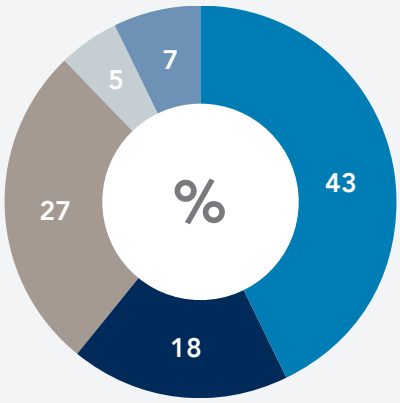
In partnership with the World Health Organization (WHO) regional office for Africa, the South African Medical Research Council Extramural Bioinformatics Unit (SAMRCBU) based at the South African National Bioinformatics Institute (SANBI) at the University of the Western Cape (UWC) set up a regional center of excellence for genomic surveillance and bioinformatics in Cape Town in September 2021.

SUSTAINABLE HEALTH RESEARCH THROUGH CAPACITY DEVELOPMENT

Building capacity for the long-term sustainability of health research, while simultaneously attaining health research transformation, is a priority for the SAMRC. These are key responsibilities of the SAMRC's Research Capacity Development (RCD) division, which provides funding for the next generation of health researchers through a variety of scholarships and research grants aimed at early- and mid-career scientists at South African universities. The performance of RCD programmes in 2021/2022 has remained consistent, with additional initiatives aimed at improving and strengthening research capacity building contributing to career development and transformation. Through these programmes, RCD also contributes to the SAMRC's other strategic goals of administering health research effectively and efficiently, leading the generation of new knowledge, and supporting innovation and technology development.

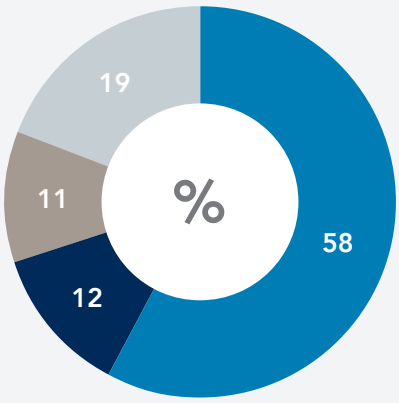
The **scholarships portfolio** at RCD comprises 5 programmes as listed in the figures below. Between 2013/14 and 2021/22, RCD has funded over 300 scholars through these programmes, of which 76% are for PhDs. The distribution of scholarships by programme, ethnic group and gender over this 9-year period are depicted in the figures below.

Scholarships by Programme (2013-2021)



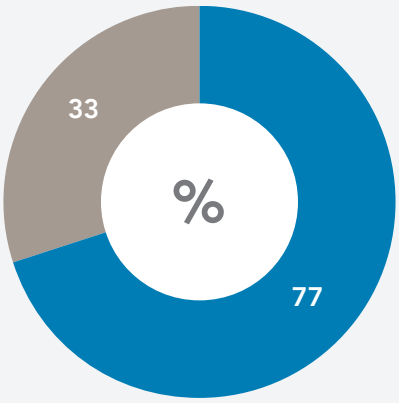
- Bongani Mayosi national Health Scholars Programme
- Clinician-Reasearcher (MBChB/PhD) Development Programme
- Internship Scholarship Programme
- Specialised Training in Vaccinology
- Researcher Development Programme

Demographics of RCD Funded Scholars (2013-2021)



- African Black
- Coloured
- Indian
- White

Proportion of Female Scholars (2013-2021)



- Female
- Male

Overall distribution of SAMRC scholarships by programme, ethnic group and gender from 2013/14-2021/22

Programmes and awards in 2021/22

NAME OF PROGRAM	LEVEL/DEGREE	NUMBER OF BENEFICIARIES	AMOUNT INVESTED (R)
SAMRC Mid-Career Scientists	Scientists (PI)	7	9, 125,000.00
SAMRC Research Capacity Development Initiative	Scientists (PI)	17	6, 900,000.00
	Postdoctoral Fellows	6	2, 450, 000.00
	PhD	7	1, 360, 000.00
	MSc	2	320, 000.00
SAMRC Intramural Postdoctoral Fellowship Programme	Postdoctoral Fellows	8	3, 162, 500.00
SAMRC Clinician Postdoctoral Career Development Award	Clinician Post-PhD	3	1, 950, 000.00
SAMRC Early Investigators Programme	Scientists (PI)	14	7, 000,000.00
SAMRC Researcher Development Grant	PhD	5	1 000 000.00
	MSc	1	160 000.00
Bongani Mayosi-National Health Scholars Programme	PhD	45	15 291 536.78
Biostatistics Capacity Development Program	PhD	1	200 000.00
SAMRC Clinician Researcher Development Programme	PhD	16	8 260 000.00
SAMRC Internship Scholarship Programme	MSc	2	320 000.00
	PhD	33	6 500 000.00

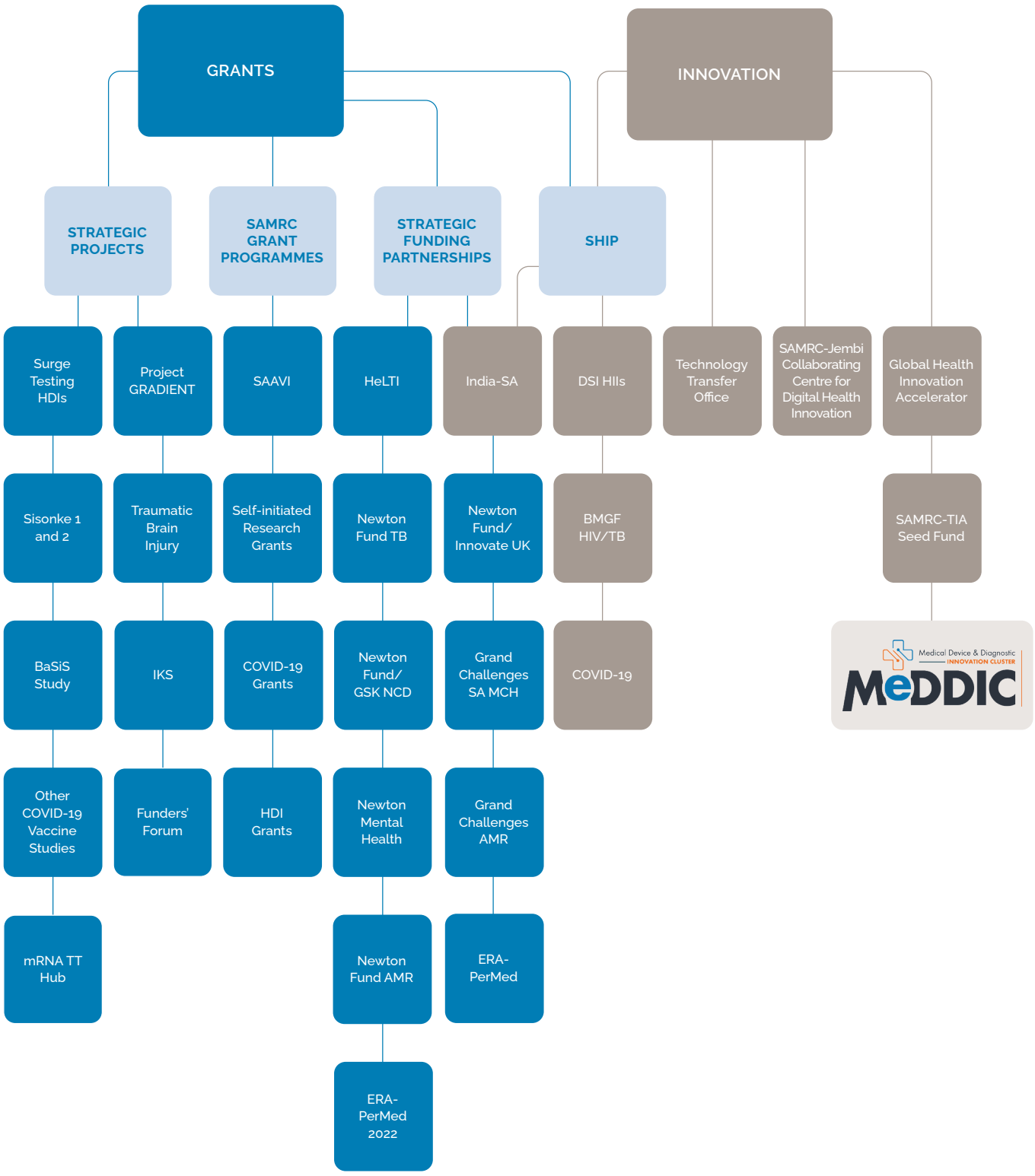
Reimagining RCD work and approaches due to COVID-19

The COVID-19 pandemic has tested the scientific community in unprecedented ways, such as moving all the conferences and workshops to online platforms, communication of scientific discoveries and mental health of researchers. The innovative approaches used by the scientific community to cope with the pandemic presented an opportunity to reimagine what the future of research might look like and what we need to do to build an appropriately skilled and globally competitive pipeline of researchers. Therefore, RCD has taken the approach not only to focus on developing research core skills but also to equip the next generation of researchers with soft skills competencies needed for the 21st-century challenges.

GRANTS INNOVATION AND PRODUCT DEVELOPMENT

The Grants, Innovation and Product Development (GIPD) Unit at the SAMRC is the custodian of grant funding and innovation for the SAMRC and is a significant contributor to all 5 of the strategic goals of the SAMRC. The robust grant management processes in GIPD ensure that health research funding is effectively and efficiently administered by the SAMRC, while the more than 250 grants actively managed by GIPD ensure that South African researchers are able to lead the generation of new knowledge and simultaneously build capacity for the long-term sustainability of the country's health research. Projects funded by GIPD resulted in several peer reviewed articles in 2021/22 and supported a substantial number of young researchers to build their research programs and experienced researchers to train new post-graduates.

The SAMRC has been very successful at establishing and maintaining strategic partnerships to leverage additional funding for research and innovation with organisations that include the Department of Science and Innovation (DSI), the Newton Fund, the Bill and Melinda Gates Foundation (BMGF) and the Technology Innovation Agency (TIA). These have expanded in the last 2 years, particularly as a result of the COVID-19 pandemic, to include additional funding partners such as the Solidarity Response Fund, the ELMA Vaccines and Immunization Foundation and the Michael and Susan Dell Foundation. GIPD's funding programs, which focus on the key health priorities in the country, have collectively allocated a total of R360 708 179 to research and innovation during the 2021/22 financial year.



The funding and innovation programs that are managed within GIPD.

REPORT OF THE CHIEF EXECUTIVE OFFICER & PRESIDENT

GENERAL FINANCIAL REVIEW

(All figures R'000, prior year in parenthesis.)

Revenue for the year showed an increase of 8.4% to R1 267 979 (R1 169 593). This consists of a decrease in government grants of 0.4% to R740 057 (R743 168) offset by a significant increase in contract income of 23.8% to R527 921 (R426 425).

Operating expenses reflected an increase of 15.8% to R1 306 199 (R1 128 037). This is mainly the result of increased research activities following the relaxation of COVID-19 lockdown restrictions.

Since the onset of the pandemic, the SAMRC has been at the forefront of the COVID-19 response, a total of around R250M was allocated to COVID-19 funding by March 2021, with the Department of Science and Innovation (DSI) contributing R65.7M by March 2021 and allocating an additional R81M in the 2021/22 financial year.

This has resulted in an operating deficit of R20 608 for the year compared to an operating surplus of R57 330 in 2020/21. An increase in investment income of 31% to R25 730 (R19 638) due to an increase in the average balance of investments during the year under review resulted in a net surplus for the year of R6 021 compared to a net surplus of R79 218 in 2020/2021.

The organisation remains financially strong with accumulated reserves of R426 770 (R420 749).

Total assets have increased by 15.1% to R1 061 674 (R922 077) due mainly to an increase in cash and cash equivalents of R94 460 from National Government as well as local and international funders to fund Covid-19 research. Vat receivable has increased by R19 110 while Property, Plant and Equipment has increased by R32 079 due to increased capital expenditure on Infrastructure and Information Technology.

Deferred income has increased by R144 150 to R450 503 due to additional funds received for research activities not yet performed while payables from exchange transactions increased by R2 254 to R10 651 due to contractual liabilities recognised on research contracts.

The SAMRC generated a positive operating cashflow of R146 813 compared to a positive operating cashflow of R284 646 in the prior period due mainly to an increase in payments to suppliers.

Net cash flows from investing activities were negative due mainly to capital expenditure of R48 943 (R49 318).

The net impact of the above is an increase of R94 241 in cash and cash equivalents compared to an increase of R230 576 in the prior year.

Spending trends

Operating expenses reflected an increase of 15.8% to R1 306 199 (R1 128 037). This is mainly the result of increased research activities following the relaxation of COVID-19 lockdown restrictions and includes increases in employee costs of R50 564, laboratory costs of R16 306, travel and subsistence of R12 527, and consulting fees of R10 969. Also included in operating costs is the donation of vaccines to the National Department of Health amounting to R58 982.

Employee related costs have increased by 13.1% to R436 775 (R386 210). Basic salary costs have increased by 7.7% to R350 753 (R325 706).

Leave payments have increased by 6.7% to R10 405 (R9 752) while temporary staff costs have increased by 52.7% to R26 329 (R17 240).

Employee related costs include net bonus provision costs of R5 876 (R5 025). The net asset pertaining to the Pension Fund and Post-Retirement medical aid obligations has reduced by R2 775 compared to an increase of R7 975 in the year.

The net surplus for the year of R 6 021 compared to a final budget deficit of R 60 248. Revenue was R24 211 over budget while expenditure was R42 430 under budget. This was due to lower than anticipated collaborative research expenditure which was R100 247 under budget. This was offset by the donation of vaccines to the National department of Health amounting to R58 983 which was not budgeted for.

Requests for roll over of funds

The organisation remains financially strong with accumulated reserves of R426 770 (R420 749). The necessary approvals have been requested for the rollover of funds received from Government but not yet spent.

Supply chain management

There were no unsolicited bid proposals received during the year. The revised Materiality Framework was approved by the Minister.

Audit report matters

There were no matters to report.

Events after the reporting date

No significant events were identified after the reporting date that may have an impact on the financial statements.

Economic viability

Funding allocations of R779 523 for 2022/23 have been approved by Government. This together with accumulated reserves of R426 770 and the increase anticipated in the value of grants received will ensure that the SAMRC will continue to operate as a going concern.

PO BOX 19070
7505 TYGERBERG, SOUTH AFRICA
ENQUIRIES: TEL: +27 21 938 0911
EMAIL: INFO@MRC.AC.ZA
www.samrc.ac.za