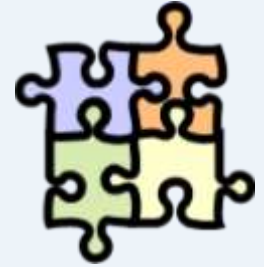




# The Monthly Newsletter: November Issue 2018



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## National University of Science and Technology

## Director



The RIO Director is currently Professor Yogeshkumar Naik. Prof Naik was appointed the role of being the Director for RIO in 2008 up to present day. His duties consist of:

- ◆ Designing, developing and reviewing institutional research and innovation strategic plans, policies, procedures and systems in line with the NUST Strategic Plan, international best practice and national imperatives.
- ◆ Identifying and exploiting alternative sources of research funding.
- ◆ Developing a university wide and focused research culture and agenda.
- ◆ Providing research skills training.
- ◆ Introducing research-mentoring programmes for junior academic staff.
- ◆ Managing the NUST Research Board activities.
- ◆ Dissemination of research and its relevance.
- ◆ Internationalisation of research and its management.

## Chief Research Officer



The RIO Chief Research Officer is currently Dr Makoni. These are some of his responsibilities:

- ◆ Improve the capacity of academics to mobilize resources for research
- ◆ Improve capacity of academics in proposal development, project implementation and publication of result
- ◆ Training academics in data analysis using SPSS
- ◆ Vetting of projects for scientific soundness
- ◆ Scrutinizing ethics issues for proposals and documentation of publications
- ◆ Produce an annual report on research activities at NUST

## Research Administrator



The RIO Research Administrator is currently Mrs Dube. These are some of her responsibilities:

- ◆ Research and Development Board Activities
- ◆ Collaborative Research Grant
- ◆ Maintaining a Register of RDB projects
- ◆ Maintaining Register of Equipment
- ◆ Maintaining a Register for MPhil & PhD Students & Graduands
- ◆ Providing Information for Annual Report
- ◆ Maintaining Ethical & Bioethical Clearance Registers
- ◆ Duty Leave
- ◆ Providing information for the COMSAT Document
- ◆ Preparing Annual Plans
- ◆ Providing RDB Dates for the Registrar's Office
- ◆ Attending to Applicants' (emails, telephone or in person)

## Chief Secretary



The RIO Chief Secretary is currently Mrs Mabvira. These are some of her responsibilities:

- ◆ Acquiring stationery and consumables for the unit
- ◆ Booking of venues and organizing refreshments
- ◆ Human Resource in the department
- ◆ Providing Administration services for external funds/grants e.g ZIRIM
- ◆ Making and maintaining appointments and the diary for the Director
- ◆ Keeping track of all votes by way of maintaining a commitment register
- ◆ Acting as protocol officer for the department
- ◆ Providing assistance within the unit
- ◆ Making travel arrangements for personnel in the unit

# SANBio Conference

The NUST Young Inventors Club participated in the SANBio LabHack 2018 in South Africa. NUST managed to field two teams in the competition. One of the teams from NUST came second after impressing the judges with the low cost Polymerase Chain Reaction(PCR) machine which is also known as the Thermocycler . The Team consisted of the following students.

- ◆ Clifford Mutsave- Electronic Engineering ( Part 2)
- ◆ Mirriam Guni- Applied Chemistry (Part 3)
- ◆ Nakai Mashamba- Industrial & Manufacturing Engineering (Part 3)
- ◆ Ropafadzo Manyuchi- Industrial & Manufacturing Engineering (Part 3)



- ◆ Tafadzwa Banga- Industrial & Manufacturing Engineering (Part 3)

**Fig 1: Dr Ereck Chakauya, Network Manager of the Southern Africa Network for Biosciences (far right) presenting awards to the NUST PCR TEAM**

The other team from NUST designed a centrifuge. A centrifuge is a machine with a rapidly rotating container that applies centrifugal force to its contents, typically to separate fluids of different densities (e.g. red blood cells from blood) or liquids from solids. The team came fourth and it comprised of the following students:

- ◆ Nigel Nyathi- Industrial & Manufacturing Engineering (Part 3)
- ◆ Rumbidzai Munguni- Chemical Engineering (Part 1)
- ◆ Samukele Maseko- Industrial & Manufacturing Engineering (Part 3)
- ◆ Rutendo Happiness- Marandure Elec-



**Fig 2: Team working on the PCR Machine**



**Fig 3: The centrifuge team working on their design in the lab**



**Fig 4: Dr Louise Be-zuidenhout, University of Oxford researcher flanked by NUST students, Clifford (left) and Ropafadzo (right)**



## World Antibiotic Awareness Week

Each November, World Antibiotic Awareness Week (WAAW) aims to increase global awareness of antibiotic resistance and to encourage best practices among the general public, health workers and policy makers to avoid the further emergence and spread of antibiotic resistance.

Since their discovery, antibiotics have served as the cornerstone of modern medicine. However, the persistent overuse and misuse of antibiotics in human and animal health have encouraged the emergence and spread of antibiotic resistance, which occurs when microbes, such as bacteria, become resistant to the drugs used to treat them. Source: <http://www.who.int/who-campaigns/world-antibiotic-awareness-week>

The theme for 2018 is “Think Twice. Seek advice.”

The WHO Regional Office kicked off the Week, in collaboration with the Food and Agriculture Organization of the United Nations (FAO), with a press conference on Monday 12 November 2018 at the Regional Office premises. The event aimed to highlight the immense problem of antimicrobial resistance as a threat to global health and encourage representatives from various media outlets and other professionals to continue raising awareness of the threat posed by antimicrobial resistance.

Source: <http://www.who.int/who-campaigns/world-antibiotic-awareness-week>

Antibiotic resistance is a serious worldwide problem. The World Health Organization has warned that antibiotic resistance is one of the greatest threats to human health today.

We can help preserve the effectiveness of antibiotics by being part of the solution. There are simple actions individuals can take to help stop the spread of antibiotic-resistant infections. It is time to take antibiotic resistance seriously. During this week the World Health Organization and the United Nations will be highlighting the serious issue of antibiotic resistance and empowering health professionals and the community to be part of the solution. We all have a part to play in helping to preserve the power of antibiotics.

Source: <https://www.nps.org.au/antibiotic-awareness>

“The loss of effective antibiotics will undermine our ability to fight infectious diseases and manage the infectious complications common in vulnerable patients undergoing chemotherapy for cancer, dialysis for renal failure, and surgery, especially organ transplantation, for which the ability to treat secondary infections is crucial.”

The prevalence of multidrug-resistant bacterial pathogens is rising worldwide. Patients with infections due to resistant bacteria experience delayed recovery and treatment failure and are more likely to die than patients with infections from non-resistant bacteria. The National Prescribing Service (NPS) MedicineWise Australia encourages both healthcare professionals and consumers to use antibiotics wisely. Health professionals are encouraged to have the sometimes challenging conversations with patients and carers when antibiotics are not appropriate

<sup>5</sup> Source: <https://www.sahealth.sa.gov.au>



## World Diabetes Day

Globally, an estimated 422 million adults were living with diabetes in 2014, compared to 108 million in 1980. The global prevalence of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population. This reflects an increase in associated risk factors such as being overweight or obese. Over the past decade, diabetes prevalence has risen faster in low and middle-income countries than in high-income countries.

Diabetes is a major cause of blindness, kidney failure, heart attack, stroke and lower limb amputation. Healthy diet, physical activity and avoiding tobacco use can prevent or delay type 2 diabetes. In addition diabetes can be treated and its consequences avoided or delayed with medication, regular screening and treatment for complications.

In 2007 General Assembly adopted resolution [A/RES/61/225](#) designating 14 November as World Diabetes Day. The document recognized “the urgent need to pursue multilateral efforts to promote and improve human health, and provide access to treatment and health-care education.”

The resolution also encouraged Member States to develop national policies for the prevention, treatment and care of diabetes in line with the [sustainable development](#) of their health-care systems.

Source: <http://www.un.org/en/events/diabetesday/>

Diabetes is a disease in which your blood glucose, or blood sugar, levels are too high. Glucose comes from the foods you eat. Insulin is a hormone that helps the glucose get into your cells to give them energy. With type 1 diabetes, your body does not make insulin. With type 2 diabetes, the more common type, your body does not make or use insulin well.

Taking a life course perspective is essential for preventing type 2 diabetes and its complications. Early in life, when eating and physical activity habits are established and when the long-term regulation of energy balance may be programmed, there is an especially critical window to prevent the development of overweight and reduce the risk of type 2 diabetes. Healthy lifestyles can improve health outcomes at later stages of life as well. Without enough insulin, the glucose stays in your blood. You can also have prediabetes. This means that your blood sugar is higher than normal but not high enough to be called diabetes. Having prediabetes puts you at a higher risk of getting type 2 diabetes.

Over time, having too much glucose in your blood can cause serious problems. It can damage your eyes, kidneys, and nerves. Diabetes can also cause heart disease, stroke and even the need to remove a limb. Pregnant women can also get diabetes, called gestational diabetes. Blood tests can show if you have diabetes. One type of test, the A1C, can also check on how you are managing your diabetes. Exercise, weight control and sticking to your meal plan can help control your diabetes. You should also monitor your blood glucose level and take medicine if prescribed. Source: <https://medlineplus.gov/diabetes.html> <https://www.idf.org/aboutdiabetes/what-is-diabetes/prevention.html>

## NUST Researcher: Mr. Gundani



Mr Morgan Patrick Gundani is a lecturer in the Sports Science Department. His interests lie in Physical Activity and Physical Education, Sports Heritage Studies. Mr Gundani has more than 15 publications in medical related journals, physical activity and social sciences related journals and health.

Mr Gundani is part of the Health and Wellness Research Group and his position is that of a coordinator. He is currently working on desktop researches with his team of researchers and with local medical institutions, on children with health conditions in order to see how physical activities can be used as intervention programmes. He is also currently working on the development of a research titled "Paediatrics suffering from spinal bifida". The aim of this project is to gauge the use of physical activity intervention programmes within hospitals and to also provide rehabilitation programmes which are life long and assist children with that condition.

However, this project is set to commence before the year ends and it is self-funded. The research board at NUST also assist with some funding where they can. The expected outcomes of the study are that the Department of Sports Science will be having at least four publications from this research and they aim

to influence policy change on rehabilitation procedures for children with spinal bifida. "Children are not only the sole beneficiaries of this project as there will also be training of manpower that will run the rehabilitation centres in different local health institutions" he said. In addition, children will also be having this lifelong rehabilitation programme which will help them cope with their condition.

Talking to RIO, Mr Gundani emphasized the importance of training as he said that "if it is not done properly, the people responsible for overseeing the rehabilitation process will be stuck on old activities that are not as therapeutic as they should be".

Mr Gundani does not only collaborate with other faculties such as that of Technical Education and Medicine. He also collaborates with the Faculty of Health Science and Physical Education at the University of Swaziland and Nazareth University in Southern Africa. He however pointed out funding as a drawback in research, "I feel the research environment at NUST can be improved by making it easier to access grants" he said.

In ten years' time Mr Gundani sees himself retired and being a consultant in sports science.



## Africa Industrialization Day

2018 Theme: “Promoting Regional Value Chains in Africa: A pathway for accelerating Africa’s structural transformation, industrialization and pharmaceutical production in the context of the Africa Continental Free Trade Agreement (AfCFTA) and the Third Industrial Development Decade for Africa (IDDA III).

Industrialization, with strong linkages to domestic economies, will help African countries to achieve high growth rates, diversify their economies and reduce their exposure to external shocks. This will substantially contribute to poverty eradication through employment and wealth creation. The success of Africa’s industrialization programme will require the creation of enabling environment that enhances domestic capacity in respect of physical and social infrastructure, human capital, financial systems, research and development (R&D), technology and governance.

Within the framework of the Second Industrial Development Decade for Africa (1991-2000), the United Nations General Assembly, in 1989, proclaimed 20 November “Africa Industrialization Day”

Source: <http://www.un.org/en/events/africaday/>



RIO interviewed Eng Mhlanga to have his thoughts on the Africa Industrialization Day. Eng Mhlanga believes that the purpose of industrialization is to improve the livelihood of people. He also highlighted the importance of industrialization, especially in Africa. “Industrialization is a chance to develop and manufacture goods that we are used to exporting,” he said. He believes that Africa has many raw materials which can be utilised by the indigenous people and bring development to this continent.

Eng Mhlanga also highlighted how industrialization removes the dependency syndrome. “It enables people to become more responsible and goods become sustainable as there will be total control in contrast to purchasing goods from outside, when there is a breakdown of some sort you will need to discard them.” He believes that Africans can empower themselves by having a national fund which will be used for industrial advancement. He believes even starting with a \$1 a day will go far. “We need to invest in money for industry. Universities can put money upfront and give an opportunity to students who have ideas that need funding. This can be a first step to industrialization.”



## Nobel Prize Winner

The Nobel Peace Prize for 2018 goes to Denis Mukwege and Nadia Murad for their efforts to end the use of sexual violence as a weapon of war and armed conflict. Both laureates have made a crucial contribution to focusing attention on, and combating, such war crimes.

Denis Mukwege is the helper who has devoted his life to defending these victims. Nadia Murad is the witness who tells of the abuses perpetrated against herself and others. Each of them in their own way has helped to give greater visibility to war-time sexual violence, so that the perpetrators can be held accountable for their actions.

The physician Denis Mukwege has spent large parts of his adult life helping the victims of sexual violence in the Democratic Republic of Congo. Since the Panzi Hospital was established in Bukavu in 1999, Dr. Mukwege and his staff have treated thousands of patients who have fallen victim to such assaults. Most of the abuses have been committed in the context of a long-lasting civil war that has cost the lives of more than six million Congolese.

His basic principle is that “justice is everyone’s business”. Men and women, officers and soldiers, and local, national and international authorities alike all have a shared responsibility for reporting, and combating, this type of war crime. The importance of Dr. Mukwege’s enduring, dedicated and selfless efforts in this field cannot be overstated. He has repeatedly condemned impunity for mass rape and criticised the Congolese government and other countries for not doing enough to stop the use of sexual violence against women as a strategy and weapon of war.

Nadia Murad is herself a victim of war crimes. She refused to accept the social codes that require women to remain silent and ashamed of the abuses to which they have been subjected. She has shown uncommon courage in recounting her own sufferings and speaking up on behalf of other victims.

Nadia Murad is a member of the Yazidi minority in northern Iraq, where she lived with her family in the remote village of Kocho. In August 2014 the Islamic State (IS) launched a brutal, systematic attack on the villages of the Sinjar district, aimed at exterminating the Yazidi population. In Nadia Murad’s village, several hundred people were massacred. The younger women, including underage children, were abducted and held as sex slaves. While a captive of the IS, Nadia Murad was repeatedly subjected to rape and other abuses. Her assaulters threatened to execute her if she did not convert to their hateful, inhuman version of Islam.

Nadia Murad is just one of an estimated 3 000 Yazidi girls and women who were victims of rape and other abuses by the IS army. The abuses were systematic, and part of a military strategy. Thus they served as a weapon in the fight against Yazidis and other religious minorities.

After a three-month nightmare Nadia Murad managed to flee. Following her escape, she chose to speak openly about what she had suffered. In 2016, at the age of just 23, she was named the UN’s first Goodwill Ambassador for the Dignity of Survivors of Human Trafficking.

This year marks a decade since the UN Security Council adopted Resolution 1820 (2008), which determined that the use of sexual violence as a weapon of war and armed conflict constitutes both a war crime and a threat to international peace and security. This is also set out in the Rome Statute of 1998, which governs the work of the International Criminal Court. The Statute establishes that sexual violence in war and armed conflict is a grave violation of international law. A more peaceful world can only be achieved if women and their fundamental rights and security are recognised and protected in war.

Source: <https://www.nobelprize.org/prizes/peace/2018/press-release/>