



Auditors posing for a group photo with some of the Executive Management.

## BIUST AWARDS QMS AUDITORS CERTIFICATES

By Wandipa Gachala

The Botswana International University of Science and Technology (BIUST) strides to perform and be recognized as a High-Performance Organization. The 27th August 2020 marked yet another milestone for the institution when it graduated eleven qualified Quality Management System (QMS) Internal Auditors who undertook ISO 9001:2015 QMS training.

For her part Director Quality Management, Dr Phetolo Malau-Modięga expressed her gratitude to the University management for the support they accorded them during this process.

She also applauded the auditors for completing the training and wished them well as they will be implementing what they learnt to help directorates and faculties to improve.

She noted that this training is an inheritance that the auditors will implement to ensure that BIUST becomes a High-performance Organization.

"The Auditors went through the following three stages: MS awareness course, QMS Processes Documentation, QMS Auditor Course" she said.

When giving his speech the Vice Chancellor Prof. O. Totolo highlighted that it is his dream to see the University perform at its optimum, as an international University it must operate according to international best practice.

Furthermore, he noted that QMS is designed to enable the

University to render services and products that exceed customer's expectations, through a risk-based process approach and achieve operational excellence.

"Operational excellence is a framework that can assist the University to focus on growth and execute the University Strategy in an efficient manner, thereby driving towards the HPO status", he added.

"Having a team of QMS internal auditors will allow the University to carry out its internal audit that mimics an external audit, to give us a picture of service delivery within the University.



Mr. Mpho Madongo lead auditor giving his remark

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*Mrs. Rebecca Richard*

## EDITOR'S NOTE

Hello and welcome to the September 2020 edition of the BIUST newsletter. This is a very special month for us as a country, the month in which the nation comes together to celebrate Independence.

Let me take this opportunity to wish the BIUST community a Happy Independence Day.

As this country's pride, BIUST continues to strive to produce world class research and innovation in Science, Engineering and Technology to industry. This is demonstrated through the level of research and collaborations which the University researchers continue to engage in.

This month's edition has captured interesting stories on various researches that our lecturers and students embarked on notably Mr Willie Marenga's project which is focused on the indigenous knowledge-based uses of *strychnos* spp, (Monkey orange) and development of two food products Mr. Marenga is one of our PhD students. .

We also had a moment with Dr Teddie Rahube who has been appointed a reviewer by the Canadian Journal of Microbiology. Also get to know Mr Ndakidzilo Nthoiwa, a full time PhD student in the Department of Physics and Astronomy.

His research revolves around optimising the temperature of solar cells through integration with Peltier/Thermoelectric devices to maximize their photon - current conversion efficiencies under sub-Saharan extreme temperature conditions. Subsequently, this could also prolong the lifespan of solar modules.

On the other hand we got the opportunity to feature Prof Mario Einax from Department of Physics and Astronomy. He is part of a consortium of 96 institutions and organisations that are involved in the Research and Innovation (RIA).

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**PHOTOGRAPHY:** Mr. Setso Keharara & Wandipa Gachala

# KNOW YOUR COLLEAGUE

By: Rebecca Richard



Mr Ndakidzilo Nthoiwa is a full time Doctor of Philosophy (PhD) student in the Department of Physics and Astronomy in (BIUST).

His research revolves around optimising the temperature of solar cells through integration with Peltier/Thermoelectric devices to maximize their photon - current conversion efficiencies under sub-Saharan extreme temperature conditions. Subsequently, this could also prolong the lifespan of solar modules.

This research work is informed by the challenge of heating up of solar cells during their operation, resulting in a performance drop and a reduced solar cell lifetime. The findings of this work are intended to benefit the institution and Botswana by setting up an informed baseline for more researchers to advance in improving the different technologies used for harnessing solar energy.

My advice to aspiring Physicists is to join us in finding to the major challenges surrounding solar energy and strive to make it economically viable. Some of the key areas of focus will be to develop inexpensive materials that may improve the efficiency of solar energy conversion efficiencies. Coming up with solutions towards storage of solar energy in a compact, inexpensive and durable form would be such a milestone in our quest.

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Implementation of the QMS is expected to improve functional processes' performance in an integrated manner thereby removing operational bottlenecks, improving cooperation and killing silos mentality within the University", said Totolo.

He added that the completion of this stage of University capacity building marks a milestone towards QMS certification by BOBS. "When attained, the certification shall serve as evidence to our customers and potential clients, locally and internationally, that the University applies an international QMS that ensures quality of its services and products" he said.

In his conclusion he recognized the sterling achievement of Professor Sahoo and Mr. Madongo, who managed to qualify as lead auditors based on their pass mark. "Colleagues let your presence be felt as lead auditors, exercise your leadership skills to work on the performance of the University. I once more congratulate you", he concluded.

In his statement of commitment Mr Mpho Madongo one of the lead

## BIUST RECEIVES FUNDS FROM EUROPEAN UNION



BIUST has established the multi-disciplinary research teams to undertake research on key research areas and engage other research institutions, universities and funders aimed at increasing external funds for research projects.

Prof Mario Einax of Department of Physics and Astronomy is part of a consortium of 96 institutions and organisations that are involved in the Research and Innovation Action (RIA). The sampled members of the consortium include two (2) EU partners (University of Vasa, Finland and Scottish Enterprises, Scotland) and four (4) African partners (University of Cape Town, SA, Addis Ababa Science and Technology University, Ethiopia, Moi University, Kenya, and Makerere University, Uganda). The Energy Village project will be funded for 60 months by the European Union (EU) starting from 2021. Because of this successful grant application, BIUST is part of the Long-Term Joint EU-AU Research and Innovation Partnership on Renewable Energy (LEAP-RE) programme.

The total funding support from the EU will be 15 million Euros. However, given the size of the group and funds distribution formula, BIUST expects about 0.24% of the total amount. Research and Innovation Partnership on Renewable Energy (LEAP-RE) is a Research and Innovation Action (RIA) supporting Energy Village Projects. The main aim of the action is to develop joint research and innovation networks for developing affordable renewable energy technologies. Making Local Renewable Energy Sources commercially available to the rural communities is one of the major challenges we are faced with all over the project will focus on the development of a roadmap on how renewable energy sources can be utilised as stand-alone reliable, off-grid systems in rural regions and how research can generate appropriate innovative solutions.

auditors thanked the University management for attending the certificate awarding ceremony, noting that it shows the commitment and support needed towards achieving the University goal.

"To you Colleagues (internal auditors) the real work begins now, it's time to practice what we have trained for as you will be expected to help with development of audit plans, audits schedules and conduct internal audits and make follow-ups as required by the standard and make sure corrective actions are done.

Dr Bombani summed the event with a vote of thanks. He extended his appreciation to the University for organizing the training and funding it. He said the training equipped them with skills of auditing processes to ensure that their departments, centres and faculties comply with the QMS requirements to improve customer service.

"It is a milestone towards the ISO 9001 certification of the University, which positively impacts on the image of the institution. We promise to work with the Directorate of Quality Management and be instrumental in the ISO 9001 certification of the university.

# BIUST DONATES STUDENTS DESKS TO RADISELE JUNIOR COMMUNITY SCHOOL

By: Wandipa Gachala

On Friday 31st July the Botswana International University of Science & Technology (BIUST) donated P8000 worth of student's desks to Radisele Junior Secondary school. This donation came as a response to a request made by the school indicating that there is a shortage of student's desks.

In response to help curb the spread of the novel corona virus the University saw it fit to play a part in helping the school prevent the virus through keeping 1 meter to 2 meters as a precaution against the virus thus discouraging sharing of desks.

For her part Acting Manager Procurement, MS Thato Mabodise highlighted that the request came at a time when the University and the world at large is faced with financial constraints. She noted that most of the government's funds are directed to fighting the pandemic and saving the nation. "We are donating about 250 desks, it is our wish to donate more but due to the changes I mentioned it was not possible." She added that the University is always looking for opportunities to give back to the community and it is very unfortunate that the times we are living in are challenging", said Mabodise.

When giving his keynote address Hon. Lasarwe Moisaraela extended his gratitude to the University for its great deed of giving back to Botswana. He applauded the institution for its effort in fighting the COVID-19 pandemic. "We have seen BIUST in the newspapers, televisions and heard about the university travelling around Botswana donating sanitizers and soaps to different districts and this made us proud" he said. He added that it is their wish to see BIUST grow and producing innovations that will develop the country.



# PLANT GENOMICS, BIOTECHNOLOGY AND PHARMACOGNOSY

By: Wandipa Gachala



Willie Marenga is a post-graduate student pursuing his master's degree in the Department of Biological Science and Biotechnology. His area of interest is in Plant Genomics, Biotechnology and Pharmacognosy.

Marenga's project is focused on the indigenous knowledge-based uses of *strychnos* spp, (Monkey orange) and development of two food products. This project aims to map the distribution of *strychnos* spp, determine their diversity through molecular fingerprinting, promote their conservation and value addition to their fruit pulp by pilot scale production of two food products.

"The *strychnos* spp. are in the list of endangered species in Botswana especially *strychnos cocculoides*. They are under threat of local extinction, but no efforts are being made to rescue these species despite their multiple uses", he says.

The ever-increasing elephant population (in Ngamiland and Chobe region) also pose a major threat to *strychnos* spp since the elephants uproot the trees in large numbers. In areas where there are no elephants, the *strychnos* spp are only found in fenced fields or farms. In these areas, humans seem to deplete them when not protected.

Value addition to their fruit pulp or making products that can be consumed throughout the year will highlight their importance and encourage their conservation. I chose this project because I am enthusiastic in exploring Botswana's indigenous knowledge in ways that will be beneficial to the community and the country at large. The use of the *strychnos* spp. plants and value addition to the pulp and leaves can help in the development of products that can be promoted and traded internationally", said Marenga.

## Environmental Sciences

### Introduction

Environmental Sciences is a multidisciplinary field of science that integrates the study of the environment, and its functions and its problems and solutions resulting from environmental development.

### Modules

Atmospheric Physics and Chemistry • Earth & Environmental Systems • Environmental Management • Global Climate & Environmental Change • Natural Resource Management Remote Sensing & Geographic Information Systems • Soil and Environmental Science Sustainable Development and Conservation of Biodiversity • Water Resource and Hydrology

### Career and Graduate Study Opportunities

Ecology Sustainability, Green Living, Atmospheric Science, Environmental Chemistry, Nature Conservation, Tourism and many more..

Award: BSc

Duration: 4 years

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# BIUST's MICROBIOLOGIST APPOINTED A REVIEWER

By: Rebecca Richard

The University writer Mrs Rebecca Richard recently interviewed Dr Rahube on his appointment in Canadian Journal of Microbiology. This is how it went!

## **Rebecca: Who is Dr Ted Rahube ?**

Rahube: I generally consider myself a Microbiologist based on my training, current teaching responsibilities and research interests.

Academic qualifications;  
B.App.Sc (Medical Science), from Queensland University of Technology, Australia- 2006

Ph.D (Biology), from University of Regina, Canada- 2013

## **Rebecca: Current position and work experience**

Rahube: I am a Senior Lecturer in the Department of Biological Sciences and Biotechnology, I have worked previously as a Medical Scientific Officer at Sekgoma Memorial Hospital in Serowe from 2007 to 2008. Most of my work experience since completing my Ph.D in 2013 has been teaching and research. I worked as a postdoctoral research fellow with Agriculture and Agri-Food Canada, at Southern Crop Protection and Food Research Centre in Canada before joining BIUST in 2014. Since then, I have mostly been involved in the development of the curriculum and new modules, also teaching undergraduate and postgraduate students at BIUST.

## **What your job entails**

My job description is divided into 3 portions, Teaching, Research and Service. I currently teach 1st year Principles of Biology (Microbiology component), 2nd year General Microbiology and postgraduate Microbiology modules. My research is also focused in Microbiology (and Microbial Genomics), specifically surveillance of antibiotic resistance in bacteria. I advise and supervise both undergraduate and postgraduate students at BIUST

I also dedicate part of my time to serve in local and international committees/ boards as part of service to the university, community and profession. Key examples include serving in the university Management and Tender Committee (MTC), the Anti-Tobacco Network (ATN) of Botswana, the Global Sewage Surveillance Project (GSSP) consortium and the Canadian Journal of Microbiology (CJM).

## **What is CJM and when did you join it and what does it take an individual to join it?**

CJM is a Microbiology Journal published by NRC research press (Canadian Science Publishing), the journal is indexed in multiple reputable scholarly databases including Scopus and PubMed. I joined the CJM Editorial board in 2017, but I have been reviewing manuscripts for CJM and other scientific journals since 2013. CJM is also affiliated with the Canadian Society of Microbiologists (CSM), which I have membership since 2008 when I started postgraduate studies.

To join the editorial board, I believe it takes dedication, and maybe the quality of feedback that you give to the journal's editors and authors of the manuscripts when you have been assigned as a peer reviewer.

## **Your role as Associate Editor and Editorial Board Member.**

My primary role is to provide comprehensive and judicious reviews that will assist the editor reach the final decision on whether to accept or reject the manuscript for publication. I am assigned to review only manuscripts that fall within my area of research.

This role is also a commitment to the scientific process, which is important in the dissemination of novel ideas to the scientific community. As an Editorial Board member, I also assist in promoting the journal in their efforts to extend the reach and increase its reputation, impact and general awareness.

## **How this boosts your credibility and relevance in the Micro-biology world.**

To me, it is part of my endeavours towards making significant contributions to the advancement of new knowledge in Microbiology at a global scale. It boosts my credibility also as an author/researcher in academia.

## **Your last inspirational words to the youth.**

I am not sure if I have inspirational words directed to the youth, all I can say in general is that it's not often the big things that have an impact in our lives, but the small things, so let's pay attention to small things. And if you wish to seek long-term inspiration, I would suggest you try Microbiology, the whole world right now is learning about microbes because of COVID-19 pandemic, it's important to understand the microbes even post COVID-19 because we live in their world, and the microbes will always have the last words.



Tlotlo France, First year undergraduate

## BIUST MY DREAM COME TRUE

By: Wandipa Gachala

Tlotlo France is a first-year undergraduate student in the Faculty of Sciences. The Environmental Science student joined BIUST in September 2019. She takes us through her life from the moment she learnt she had Osteosarcoma (bone cancer). France shares her story with the hope that she will help someone out there who is fighting a battle where they feel alone.

Speaking to this publication France noted that she grew up as a normal child with her twin sister and her mother who have always been her pillar of strength. She highlighted that growing up she had passion for athletics and she was very competitive.

"Things changed one day when I was competing during a 100m race, I had an excruciating pain on my right leg. As an athlete I thought it was a muscle pull that will go away with time. Little did I know that more awaits me. The pain became unbearable and that's when I decided to see the doctor", she said.

France says she was only twelve when she got diagnosed with Osteosarcoma Cancer, a disease she knew nothing about. She highlighted that it was only after she saw her mother cry that she released that it was a serious disease. She lost hope in her dream career of becoming a professional athlete and life.

She was referred to Princess Marina Hospital to see a cancer specialist for children. "I was admitted in Oncology to start cancer treatment immediately and there was only one cancer specialist. I was then booked for MRI to check the level of cancer and completed two cycles of chemotherapy

followed by an above knee amputation of the affected leg, I then completed the remaining 10 cycles of Chemotherapy", she added.

France continued with her studies while she was on treatment, this did not discourage her. She passed her primary school leaving examination and proceeded to junior school. This was a difficult time for her as she had to adjust to a new environment where people did not understand her condition. Students did not want to interact with her and this made her feel as if she was from a different world.

"I started developing suicidal thoughts and blamed God for everything that was happening in my life. I talked to my mother and my twin sister about quitting school because of the way other students were treating me, they cried. My mother said to me, accept who you are, make peace with your condition and people will get to understand your situation. These words saw me through my junior school.

She started sharing her story with people in her community and other students at school and things became better. Having a disability did not become a disadvantage to her. She worked hard and excelled in her academics. The Selibe Phikwe community and her school blessed her with an artificial leg. This touched France and her family very dearly, she promised herself that she will give back to them by passing her junior certificate.

"I passed my Junior level with second class (B), I then got admitted at Selibe Phikwe Senior School in a pure science class. Things became complicated for me, I had to explain my sickness to new people who

had no idea of my sickness and adapt to the new environment. This time I was stronger than before, I fought to be heard. Unfortunately, my artificial leg couldn't survive for long, it lost me before I could complete my form five, I had to go back to using crutches", she said.

France passed her BGCSE with flying colours. Her dream was to see herself as a BIUST student in the Faculty of Engineering, only to be told that engineering has a lot of practical's so her conditions could not allow her to carry out. She was disappointed.

However, this did not stop her from perusing a bachelor's degree here in BIUST. She applied in the Faculty of Science and got admitted. Her frustration began when she had to leave home to a village kilometre away from her comfort. Everything became tough, but she kept pushing, whenever she felt like giving up her mother's voice became her strength.

"The BIUST SRC raised funds from the Palapye community for my leg, unfortunately due to the pandemic they did not reach the target. I believe God had a reason for bringing me to BIUST. One day I received a call from Student Affairs office informing me that they are organizing to buy me a leg. I was excited to receive such news after so many struggles" she said.

France extends her gratitude to the BIUST community for seeing it worthy to buy her a leg. It made her feel as a part of a loving and caring community. She says fitting in was always a challenge but BIUST is home away from home. She hopes that one day she will make the University proud by flying its flag high internationally.

"To young people when a situation comes your way give it your best shot people will always talk and the only way to beat that is for you to have the confidence and stand before them and change their view towards it.

I was able to beat cancer and fight for my freedom in the community, you may think your situation is worse until you find someone with a worst situation than yours. Learn to stand for yourself and fight against that situation kneel and call for Gods intervention. You will make it, I was able to study in my dream institution with my disability. You too can do it.

# BIUST STRATEGY MAP

## VISION

A premier research-based university of science, engineering & technology internationally recognised for the quality and excellence of its teaching and learning by 2020.

## MISSION

Produce world class research and innovation in science, engineering and technology contributing to industry growth and development and advancement of a diversified knowledge-based economy.

## CORE VALUES

In carrying out its mission, realizing its vision and in all its actions the University is guided by the following core values:

### 1. Equality and Diversity

Fair and equal treatment, respect for the rights, differences and dignity of others, promoting an inclusive culture for all.

### 2. Sincerity and Trust

Genuine, truthful, honest, transparent, integrity, reliability.

### 3. High performance and Quality

Hard work, teamwork; strong work ethics; commitment, dedication, fast-paced, successful, accountability, quality and results-oriented, ambitious, recognition and reward, talented staff and students.

### 4. Innovation

Creative, open-minded, resourceful, entrepreneurial

### 5. Quest for knowledge and understanding

Freedom of thought, inquiry and expression and the encouragement of a questioning spirit



## Financial Perspective

SG 5 Ensuring Financial Sustainability and Growth to Drive Performance

## Internal Process Perspective

SG 6 Improving Institutional Effectiveness to Drive Performance

## Internal Process Perspective

SG 7 Developing Capabilities to Drive Performance