



NEWSLETTER

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EDITORIAL TEAM

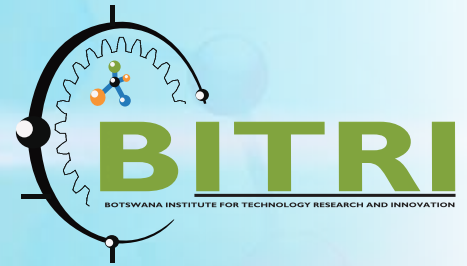
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MISSION

To conduct needs-based technology research that provides sustainable innovative solutions through co-creation and collaboration with local and international stakeholders.

VISION

To be the leading technology solutions provider that transforms lives.

TECHNOLOGY SOLUTIONS
FROM YOU
TO US
FOR YOU

VALUES

Teamwork

We operate and innovate through teamwork, and although we expect individual expertise, the team performance takes priority. The value of innovation through teamwork includes behaviours such as valuing contribution, accepting diversity, pro-active approach collaboration and co-creation.

Excellence

We expect and encourage unquestionable technical and operational excellence in planning, executing, monitoring and continuously improving everything we do.

Empathy

We interact, operate and generate solutions that optimally balance the interest of all stakeholders.

CEO's Foreword

Welcome to another edition of the BITRI quarterly newsletter. During this period, we participated and facilitated numerous engagement activities to promote awareness of the organisation as well as to sensitise the market on our products. BITRI amongst other activities, signed an MoU with BOBS, which will serve as a basis for both organizations to leverage on synergies they have. We have also had engagements of a strategic nature with other institutions in defence and military, energy and natural resources management, venture capital and research to place BITRI at the forefront of transforming Botswana's economy to one that is capable of knowledge production, dissemination and use for growth, development of industry and enterprise along the supply chain, employment and wealth creation.

At BITRI, our work is driven by engaging stakeholders to create and deliver innovative solutions, and the Minister of Tertiary Education, Research, Science and Technology Mr Thapelo Olopeng as well as the Chairperson of the BITRI Board of Directors, Professor Sesae Mpuchane shared similar sentiments in their speeches during the third BITRI Open Day. The Minister underlined the importance of BITRI driving economic growth and driving a knowledge-based economy, and Prof Mpuchane, referencing the BITRI tagline: TECHNOLOGY SOLUTION FROM YOU TO US FOR YOU, emphasized the importance of collaboration and co-creation in BITRI undertaking its work, and hence the Open Day as one of the engagement platforms.

This year's International Women's Month theme, entitled 'Think Equal, Build Smart, and Innovate for Change' places innovation by women and girls, for women and girls, at the heart of efforts to achieve gender equality. Similar intentions were also expressed during the Open Day. Women constitute half, if not more, of the global population and specific communities, and their exclusion translates into some form of brain drain. BITRI honoured and celebrated its women on March 15th, and the women had fruitful discussions on how they can overcome their challenges and advance their

contribution in science and society.

On another note, I wish to take up this opportunity to welcome new members of the BITRI staff - Mr. Aobakwe Obusitse and Ms. Kgalalelo Kgatlane had been serving as Interns at the BITRI Centre for Material Science, where they demonstrated exceptional capacity, and upon an opportunity for full employment, convinced the interview panel that they are capable of making an impact and contributing towards the objectives of the CMS as a business unit, as well as the strategic objectives of BITRI as a leading technology research institution. Ms. Kgatlane as a woman in Science, Technology, Engineering and Mathematics (STEM) has her work cut out for her in helping Botswana transform into a knowledge-based economy, and BITRI provides the appropriate environment for her and all women within its ranks.

You are, accordingly, invited to peruse this newsletter to learn more about BITRI. We look forward to working with you and having conversations about making science and technology improve the lives of our communities, nation and the world.

Prof. Shedden Masupe
BITRI Chief Executive Officer



Minister Olopeng Officiates at the BITRI Open Day

The Minister of Tertiary Education, Research, Science and Technology Mr Thapelo Olopeng, officiated at the third BITRI Open Day recently. In his keynote address, the Minister said the BITRI Open Day was meant for BITRI to showcase its products and services including its scientific and technology innovation capacity and expertise to members of the public. He said the creation of BITRI was a systematic and deliberate move towards creating a sustainable ecosystem of development through technological innovation. "The presence of a profound science and technology institution in place fosters and drives a culture of research and development, resulting in innovative solutions and outputs that have an impact on productivity and stimulation of economic growth" he elaborated.

The Minister acknowledged that science and technology are key drivers of development, because technological and scientific revolutions underpin economic advances, including improvements in agriculture, health systems, education and infrastructure. The Minister encouraged BITRI to take the Open Day outside Gaborone to share information about BITRI with communities around the country. He says this will enhance the BITRI brand visibility. "I also believe that hosting this open day in various communities will help us to identify innovations amongst members of the public which we can support and nurture.

In order for us to produce graduates who can compete in the global space in Science, Technology, Engineering and Mathematics, we must develop our students from grass-roots level. I am pleased to note that students from primary school level to tertiary, have been invited to attend this open day. The intention is to show them what science and technology can do for development" said the Minister.

When delivering the Welcome Remarks, the Chairperson of the BITRI Board of Directors, Professor Sesae Mpuchane said BITRI was setup in 2012 to conduct needs-based research in two broad areas of Technologies and Natural resources and materials to identify, develop and adapt appropriate technology solutions that provide sustainable innovative solutions. Prof Mpuchane added that the open days, held on a bi-annual basis, create a platform where BITRI could interact and share ideas and research outputs with stakeholders.

"We would very much appreciate for you to take time to interact with our Researchers to understand what they are doing and give us feedback. Your feedback is critical in that it is you we are serving and who know what you want and therefore it is you who can tell us if we are in the right track or not. Your feedback is also critical because our vision is to be the Leading Technologies solutions provider that transforms lives and we want to know if you think our projects are driving us there. We want to be Botswana's economic engine of prosperity and growth through the products and services that we develop," Prof Mpuchane elaborated.

The BITRI Chief Executive Officer Prof. Shedden Masupe led a delegation, comprising among others Minister Olopeng, MoTE Permanent Secretary Dr Theophilus Mooko, Members of the Diplomatic corps, Chairperson of the BITRI Board of Directors Prof Sesae Mpuchane, other Members of the BITRI Board of Directors, and government representatives through of tour of BITRI exhibits and laboratory facilities. The media, members of the public, and learners from primary to tertiary also graced the day and were taken on conducted tours of the exhibits.



Minister of Tertiary Education, Research, Science and Technology
Mr. Thapelo Olopeng delivering the Keynote Address at
the 3rd BITRI Open day



Chairperson of BITRI Board of Directors Professor Sesae Mpuchane,
delivering welcome remarks.



Mr. Kholwani Velepini of the Design division, explaining the value add
of the division to the production of research outputs at BITRI.



Mr. Mboko Lutu explaining the Italise solution to Minister Olopeng and dignitaries.
Mr. Lutu is part of the ICT Associates program at BITRI. The Associates develop
ICT-related businesses and see to their operation.



Ms. Lucia Otsetswa of Italise application, explaining its functions to
Minister Olopeng and MOTE PS Dr. Theophilus Mooko.



Professor Nnyaladzi Batisani explaining the mandate of the Climate
Change division.



Moses Tsalaile attending to customers during a tour of the Electronics and
Communications laboratories.



Ms. Nobulile King demonstrating the energy saving cooking stove to
customers.



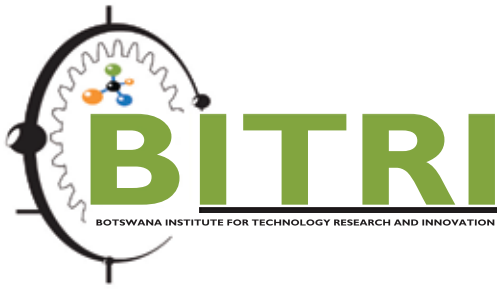
BITRI Chief Executive Officer, Professor Shedden Masupe and BOBS Managing Director, Ms. Masego Marobela shaking hands after the signing of the MoU.

BITRI and **BOBS** Sign MoU

On Thursday 21st March, the Botswana Institute for Technology Research and Innovation (BITRI) Chief Executive Officer Prof Shedden Masupe and the Botswana Bureau of Standards (BOBS) Managing Director Ms. Masego Marobela signed a Memorandum of Understanding that will facilitate collaboration between the two institutions across several areas.

The MoU will be project-based and will facilitate collaborative research, including applied research that would be provided by BITRI, whose results; the scientific data, literature and other information will provide BOBS with the necessary base material for the development of standards for the various sectors of the economy. The MoU will also serve as a basis for both organizations to leverage on synergies they have, to offer consultancy services in areas of expertise, including in the testing, calibration, accreditation, as well as technology transfer activities.

The collaboration will also aid both organizations to assist their clients with services, including for purposes of testing required for product certification by BOBS and training on standards as may be required by BITRI.



Introduction of a New Member of the BITRI Board of Directors



DR ONTIRETSE MADISA MINE
BITRI BOARD OF DIRECTORS (MEMBER)

Dr Ontiretse Madisa Mine has been appointed to the BITRI Board of Directors with effect from 1st December 2018. Dr Mine is a Senior Consultant Virologist and Head of the National Health Laboratory in the Ministry of Health and Wellness. He has held various positions in the Ministry of Health such as Consultant Virologist and Head of Botswana Harvard HIV Reference Laboratory. Prior to joining the Ministry of Health he was a Lecturer in Genetics, Molecular Genetics and Biotechnology at the Botswana University of Agriculture and Natural Resources.

Dr Mine was a Post-Doctoral Research Fellow in the Fogarty International Training Program in HIV/AIDS related Epidemiology at the Harvard School of Public Health at Harvard University, Boston Massachusetts in the United States. Dr Mine has published extensively on HIV/AIDS as well as made presentations at various conferences both locally and internationally. He is currently a member of the Board of Members of the Botswana Harvard AIDS Institute (BHP). He holds PhD in Molecular Biology and Vaccines development from Murdoch University in Perth, Western Australia.

The Botswana Institute for Technology Research and Innovation (BITRI) is a parastatal under the Ministry of Tertiary Education, Research, Science and Technology, established in 2012 to conduct needs-based research and development in focused areas.

The Mandate of BITRI is to identify, develop and/or adapt appropriate technology solutions that provides sustainable innovative solutions through co-creation and collaboration in line with national priorities and needs of Botswana.

Members of the BITRI Board of Directors are appointed for a three-year term, and can be re-appointed for a second term of two years. The Board of Directors is responsible for the strategic direction of the organisation. It comprises of members from different sectors such as academia, mining, private sector and research.

March had been designated Women's Month, and on Friday 15th, BITRI commemorated the day by recognising its women at a breakfast meeting where they discussed issues of interest.

This year the international theme is 'Think Equal, Build Smart, and Innovate for Change'. The theme is based on the premises that Science and Technology, Engineering and Mathematics (STEM) have long been recognized as stimulus for economic prosperity and key for development and prosperity. Following from that, many countries subscribe to the need for the skilful utilization and management of STEM to help realise the goal of development and prosperity. The theme places innovation by women and girls, for women and girls, at the heart of efforts to achieve gender equality.

Women and girls could draw inspiration from the theme and apply its central message at work, home, family, communities and social

spaces in order to think equal, build smart, innovate for change.

Dr. Kereilemang Nthoiwa, who was the guest speaker shared her personal journey, detailing her successes, challenges of achieving higher education and success as a wife and mother, the glass ceiling imposed on women and girls, as well as the skewed progression of males versus females in the work place.

The ensuing discussions were facilitated by the Strategy Manager, Ms Chanana Mokgethi, and different women shared their experiences and shared on aspects of brain drain experienced when women are excluded from STEM fields and various leadership roles, the socio-cultural definition of gender roles that limits the girl child from an early age, as well as the educational and career development opportunities that advance the role of women in STEM and society.



One of our colleagues at BITRI, Kesego Itshepeng shared her experience relating to her daughter pursuing a qualification in STEM. "My daughter is studying for a science degree at Botswana International University of Science and Technology. When she first told me about her intention, I was skeptical, to a point of almost discouraging her to go through with her intentions. I felt that the course is more suitable for men, and I wondered if she would be able to cope. Luckily, she had the confidence and self-assurance to follow through, and she is currently doing well in her studies," Ms. Itshepeng elaborated.

The women made a resolve to build the confidence of the girl child by affirming them, raising the boy and girl child on an equitable platform to address the superiority complex usually displayed by the former, and to create platforms where related issues can be addressed to advance the contribution of

women in science and the general society.

IWD is celebrated globally on March 8th, with the commemoration dating back to 1909. The 2019 national commemoration intended to identify strategies for STEM in Botswana, solicit ideas for localisation of the theme, and identify build up activities for the commemorations, as well as strengthen existing, and establishing new partnerships, funding and networks for advancing STEM and gender and development in Botswana.





Open International Tender – Supply, Installation, Configuration and Commissioning of a Computer Numerical Controlled Laser Cutter Tender No. BITRI 332.63/008/2019

Botswana Institute for Technology Research and Innovation (BITRI) invites bidders to submit proposals for the Supply, Installation, Configuration and Commissioning of a Computer Numerical Controlled Laser Cutter.

A non-refundable fee of **BWP250.00** shall be paid by bidders to BITRI Accounts Office prior to collection of tender documents. Payment may be in the form of cash or via Electronic Funds Transfer (EFT).

Local companies must be registered with the Public Procurement and Disposal Board in the following categories:

Code 203, Sub code 03

Closing Date and Time

The closing date and time of the Tender **is not later than June 14, 2019, at 0900hrs GMT +2.**

Any communication concerning clarification of the contents of this invitation to bidders should be forwarded either in writing, facsimile or email to **Procurement Officer:**

**Botswana Institute of Technology Research and Innovation
Private Bag 0082, Gaborone, Botswana
Fax: (+267) 360 7624 Email: procurement@bitri.co.bw**

BITRI Sensitizes Maun SMEs on Technology Transfer

BITRI in collaboration with the Maun Local Enterprises Authority (LEA) sensitized Small and Medium Enterprises (SMEs) on current and future technology transfer and commercialization opportunities available in BITRI. The areas discussed comprised of BITRI's approach to technology transfer, the modes of and the role SMEs can play in technology transfer and commercialization of BITRI invented technologies. The SMEs can leverage upon BITRI technologies to enhance and cement their competitiveness since BITRI technologies are intellectual property rights protected. The SMEs were also briefed on BITRI existing technologies available for uptake.

Twenty-five SMEs from the manufacturing sector participated and were advised to diversify their portfolio by investing in commercialization of BITRI technologies. BITRI emphasized that even though the SMEs are small today they stand a better chance of being tomorrow's multinational companies through working together with other likeminded industry players such as BITRI.

Giving vote of thanks one of the SMEs expressed gratitude for the collaboration between LEA and BITRI as it has informed them on various exploitable opportunities and tools to use to ward off competition, grow and increase their market share. She further said BITRI should attain and maintain a balance between researching and developing high end technologies and simple technologies that can quickly improve the quality of lives Batswana. Transforming *mokolwane* tree leaves into cheap insulation material for use as an insulation material (ceiling) in residential houses was cited as an example. The sensitization was held at Cresta Riley's hotel in Maun on 19th February 2019.



BITRI staff with the trainees.



The BITRI Centre for Material Science

The Botswana Institute for Technology Research and innovation (BITRI) is a parastatal under Botswana's Ministry of Tertiary Education, Research, Science and Technology, established with a Mandate to Identify, develop and/or adapt appropriate technology solutions that provide sustainable innovative solutions through co-creation and collaboration in line with national priorities and needs of Botswana. The technologies will as much as possible maximize the use of local materials to ensure efficiency and affordability.

BITRI has established a world-class Centre for Material Science (CMS) with state of the art laboratory facilities, such as XPS, XRD, XRF, SEM, high resolution GC-CMS, LC-MS and ICP-MS. The CMS has synthesis capabilities for metal nano particles, electrospun nano fibres and materials characterisation that will serve the research needs as well as the commercial materials analysis needs of Botswana and Africa across a variety of sectors.

BITRI invites all interested parties to use the facilities for a fee.

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- ☎ (+267) 360 7500
- ☎ (+267) 36- 7624
- 🌐 www.bitri.co.bw/cms/
- ✉ communications@bitri.co.bw cms@bitri.co.bw

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BITRI Recognises Staff Who Have Completed IP Courses

Some BITRI staff members were recently awarded certificates attained after completing and passing various levels of courses intended to enhance their understanding and application of the principles of intellectual property (IP) in Research and Development.

The courses are administered by World Intellectual Property Organization (WIPO) and are available from basic to advanced for research and non-research professionals.

This achievement by staff, is more significant, owing to the importance of the need for a national and international IP system that enables innovation and creativity for the benefit of all within the local and global contexts.

The BITRI Board of Directors has approved two important documents in the form of The Path to Innovation Management Framework that guides technology transfer and commercialization of BITRI technologies and the Intellectual Property Policy, a document that provides a framework for governing the rights and responsibilities of all stakeholders in relation to inventions and other creative processes arising from their activities, as well as provides for the recognition and provision of incentives for the innovative contributions of individual researchers and to provide for more effective utilization of Intellectual Property.

The President of the Republic of Botswana, Dr. Mokgweetsi Eric Masisi, has also highlighted the importance of IP in the creation of wealth and transforming the economy from resource-based to knowledge-based, and in the process forging several partnerships with strategic partners, both locally and internationally.



Some of the BITRI staff, who completed IP training, posing with BITRI management

BITRI Hosts Venture Capitalist Paul Bragiel



Venture Capitalist, Paul Bragiel, giving a speech.

BITRI, recently hosted Paul Bragiel, a venture capitalist from the United States who was in Botswana at the invitation of the Minister of Investment, Trade and Industry Ms Bogolo Kenewendo. Mr Bragiel visited Botswana to scout for investment opportunities for Savannah Fund, which has vested interest in startups. Paul Bragiel is a co-founder and managing partner at I/O ventures, an early stage startup accelerator which operates in San Francisco. Previously he has founded and served as the CEO of 3 companies. In attendance at the meeting was the Minister of Tertiary Education, Research, Science and Technology Honourable Thapelo Olopeng, PS in the Ministry Dr Theophilus Mooko and Deputy PS Dr Kekgonne Baipoledi and other senior government officials.

In her remarks, Minister Kenewendo said Government has policies to support investment in youth. Mr Bragiel further said Botswana can benefit from his experience if only the country could build the confidence saying there are plenty of opportunities in the country emphasizing that perseverance in starting up is key.

Welcoming the delegation, the BITRI CEO Prof. Shedden Masupe gave a brief overview of the BITRI Mandate. He noted two products which he said were going commercial being Seding and KSBB. Prof. Masupe also alluded that having visited some American Universities and said he believes the BITRI Centre for Material Science is of international standard because most of the equipment available in those universities are available at BITRI CMS. He also said BITRI has produced a filter material whose performance exceeds that found around the world as it can also block viruses. He said the product is ready for commercialization. On the ICT Associate Programme, Prof Masupe said it was borne out of a desire by BITRI to play a role in addressing the unemployment of ICT graduates. Two Associates - Lucia Otsetswe and Mbako Lufu gave overviews of their projects.

New @ BITRI

Botswana Institute for Technology Research and Innovation (BITRI) has appointed Mr. Aobakwe Obusitse and Ms. Kgalalelo Phatsimo Kgatlane to the positions of Associate - Instrument Specialist, with effect from Monday 25th March 2019. Mr. Obusitse and Ms. Kgatlane as Associates - Instrument Specialist at the Centre for Material Science (CMS), will be responsible for managing and operating selected instruments and equipment for BITRI Researchers and for external clients.

We welcome Mr. Obusitse and Ms. Kgatlane to the BITRI team, and we eagerly anticipate their contribution towards help BITRI fulfill its Mandate of "... identifying, developing and/or adapting appropriate technology solutions that provides sustainable innovative solutions through co-creation and collaboration in line with national priorities and needs of Batswana."



Mr. Aobakwe Obusitse

Mr. Obusitse will be principally responsible for the operation and analyses of samples on ICP-MS and MP-AES/AAS. He graduated with a Bachelor of Science (Chemistry) from the University of Botswana, and has extensive experience working in and managing chemical laboratories. As a part-time Research Assistant at UB, he primarily worked on developing soap and cosmetic products. During his tenure, Mr. Obusitse worked on research to determine cosmetic properties of donkey milk and some natural herbs and develop formulas for bathing soaps and other cosmetic products in collaboration with Kalahari Donkey Products (Pty) Ltd and Takuwa Natural Products (Pty) Ltd.

Mr. Obusitse has, for the past 17 months, been an Intern Instrument Specialist Assistant at the BITRI CMS, his primary role being to work with Researchers in the Nanomaterials division in chemical characterization and materials analysis. He was responsible for carrying out proficiency tests on water samples from Botswana Bureau of Standards for National Quality Control Sample Exchange Scheme (NGCSES), testing water samples from individual customers, university laboratories and clients, doing sample analysis using ICP-MS and MP-AES, and developed competencies in working with the X-Ray Fluorescence Spectroscopy (XRF) and LCMS. Mr. Obusitse also managed laboratory processes and practices in compliance to international standards ISO/IEC17025: 2017 in order to control and assure quality in sample testing and analysis.

Ms. Kgatlane, in her role, will be responsible for the operation and analyses of samples on a thermal analyser, with emphasis on Thermal Gravimetric Analysis (TGA), Atomic Absorption Spectrometry (AAS), X-Ray Fluorescence Spectroscopy (DTA) and Differential Scanning Calorimetry (DSC) as techniques of analysis. Ms. Kgatlane has served as Intern Instrument Specialist Assistant at the BITRI CMS, her area of responsibility included developing analytical methods, developing preparation methods as well as characterizing parameters using pertinent instruments. Ms. Kgatlane was part of a team that developed standard operating procedures, validation of test methods and maintenance of equipment in preparation for ISO/IEC17025: 2017 international standards. Her highest academic qualification is a Bachelor of Education (Science) attained from the University of Botswana.

Ms. Kgatlane has had a stint as a Student-Teacher at Moeding College and has also worked as a Volunteer during the African Materials Research Society (AMRS), Gaborone conference held in December 2017.



Ms. Kgalalelo Phatsimo Kgatlane

BITRI Stakeholder Engagements

26 APR

World Intellectual Property Day
Gaborone

29 MAY

Business Botswana Northern Trade Fair
BOCCIM Grounds, Francistown

03-07 JUN

BIUST STEM Festival
BIUST, Palapye

11 JUN

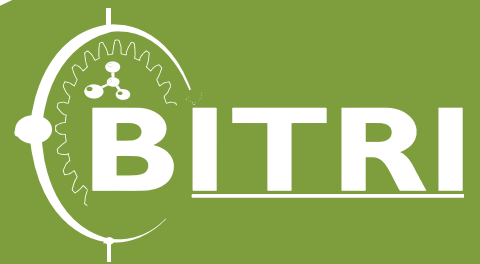
BITRI Public Seminar
Gaborone (TBC)

06-09 AUG

Global Expo Botswana 2019
Fairgrounds Holdings, Gaborone

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