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ENGINEER MAGAZINE

Botswana

"This is the time to reset and think Botswana not think my pocket or your pocket." Hon.Molale



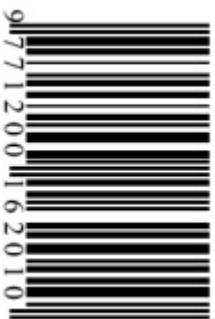
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HAPPY 10th ANNIVERSARY ERB

TKM Engineering Management & Staff would like to take this moment to wish you a Happy 10th Anniversary and many more years of success. It has been a great pleasure being part of your success journey.

TKM Engineering is a Building and Civil Engineering Construction company established in 1992. The company is 100% Botswana citizen owned and run by qualified Engineering professionals having skills in project management and design of buildings, warehouses and civil engineering infrastructure.

We have accomplished a range of civil engineering and building projects that include water pipe lines, sewer reticulation, roads, storm water drainage, large pipe construction, concrete structures and waste water treatment plants, sports facilities, warehouses, educational and commercial buildings. Over and above, we are known for the ability to carry out the maintenance of buildings involving painting, roofing, carpentry, plumbing as well as general repair and replacement. As TKM Engineering we understand the value of registering our Engineers and Technicians with Engineers Registration Board (ERB) so that they gain professional recognition which instils a sense of confidence about their competence in the mind of our clients. We seek to be different by taking the responsibility to pay all the registration and annual practicing certificate fees for all our Engineers and Technicians. Currently, we have Nine (9) Engineers, and Six (6) Technicians, and they all have practicing certificates.



Local Engineers finding a way forward

Engineers Registration Board has this year reached a milestone of ten years from the late ERB registrar Armando Lionjanga to the current Registrar Engineer Dennis Olaotse. A lot can be said about the Registration Board but what stands out is the improvement in making the engineering profession visible and relevantly talked about in a different light. Notably the introduction of Continuing Professional Development (CPD) points and the annual forum have been a highlight in their efforts to elevate the profession to international standards.

This year's event which was dubbed engineering week included three days of the forum and the fourth day as commemoration of the International engineering day. It was well received by those who attended and we look forward to 2024. The Register Engineer Dennis Olaotse via the ERB Facebook page shared a message on International Engineering day on the 4TH March 2022.

"Fellow Batswana, supporting engineers and their work can also result in the achievements of our own 2036 goals and aspirations especially Pillar Number one on sustainable economic development and Pillar Number Two on sustainable environment. Engineering work is also important for the successful implementation of his Excellency President. Dr Mokwetsi Eric Keabetswe Masisi Reset Agenda especially for what it is Number three and four on Digitization and Value Chain Development respectively. The achievement of all the aspirations espouse in this noble initiatives can only be achieved if engineers take their rightful role in the Development Agenda of this country

We pay tribute to past and present engineers who have built this country to its current look and shape. We also encourage young and upcoming engineers to build on the foundations laid by their forbearers and to commit to ensuring this country becomes a knowledge based economy as enshrined in vision 2036 and his Excellency President Reset Agenda. I once more want to thank all engineers practicing in this country for their contribution to our development. We owe all the magnificent infrastructure and great looks of our cities and villages to them. I call upon young people including the girl child who is under represented in this profession to take up engineering profession and make their contribution to shaping the future of their country. Finally I once more urge and encourage all Batswana to join me in celebrating our engineers on this important day, give them a pat on the back and urge them to continue doing good for their country and people."

We hope you enjoy this read. We urge you to Advertise your businesses, Contribute an article or share a copy with a friend to help us grow. Email Ads and articles to marketing@engineerbw.com. Thank you.



ERB Registrar
Engineer Dennis Olaotse



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SCAN ME



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Engineer Mosarwa shares the journey of the forum and how they had to overcome challenges and work within a budget to bring the forum to fruition. She also urges engineers to be active in activities that benefit them,



Dear Engineers ...



The Minister of Infrastructure and Housing Development
Honorable Eric Mothibi Molale

- Industry is faced by a plethora of challenges and among these are abandoned projects and delivery of substandard engineering work.

The Engineers Forum 2022 has made a comeback after an involuntary hiatus caused by the Covid 19 pandemic in 2019. The event is the 2nd offering and it has been hailed as bigger and better by those who attended. Engineers who attended applauded the organisers and the presentation of the event as a whole. The Engineering Forum ran from the 1st to 4th March 2022 under the theme “Creative Engineering Value Chain- Advancing towards Industry 4.0”

The Minister of Infrastructure and Housing Development who is also a Member of Parliament for Goodhope-Mabule constituency, Honorable Eric Mothibi Molale gave the keynote address. He spoke mostly on corruption and touched base on some vital topics of skills mismatch between the industry and the tertiary or vocational skills training. The minister also took time to expand on substandard work from the engineering sector and that this issue was really draining resources from the country.

He started his opening remarks with obvious salutation to those present and acknowledged the engineers in attendance. Minister Molale was grateful to ERB for hosting such a much needed event as the Host has since acquired recommendations from the first installment of the event. “The theme for this forum, which is: Creative Engineering Value Chain – Advancing towards Industry 4.0, could not be more appropriate. It resonates well with the Government





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Students from New Era College attended the Forum

Reset Agenda as well as the National Vision 2036 aspirations.” he said. He went on to encourage the engineers in Botswana to be creative and innovative as they apply themselves to work in the entire engineering value chain. He noted they were CIPA and international registered engineering patents but he thinks there must be more. The more they come up with solutions the better communities will be.

“Ladies and Gentlemen, engineers are innovators and therefore are expected to take the lead in a multi-stakeholder effort to generate solutions to the challenges. These challenges include high rates of unemployment; huge income gaps; poor service delivery; environmental impact of climate change which stifles food production efforts and drives up the cost of living; corruption; crime; non-communicable diseases and recently the Covid-19 pandemic. The glaring challenge is lack of capital to take these prototypes to production. Government and stakeholders are

working to improve the start-up financing ecosystem in the country.”

Requisite infrastructure is already in place to facilitate innovative solutions and these include institutions of higher learning, technical colleges, the Botswana Innovation Hub (BIH), Companies and Intellectual Property Authority (CIPA) and the Botswana Bureau of Standards (BOBS).

“ Betsho, this Forum takes place against the backdrop of an industry faced by a plethora of challenges. Among these are: abandoned projects , delivery of substandard engineering work , increase in engineering related litigation , bulging project cost overruns on public works, a disconnect between industry and academia leading to skills mismatch between

academic programmes offered by education institutions and actual skills needed by the industry; and engineers who continue to practice without having registered with the Engineers Registration Board.” The Minister gave viable solutions that may remedy these anomalies. A number of interventions have been or are to be implemented. “My Ministry is working to set-up a Construction Industry Authority for better expound regulation of the industry. Following approval to draft a bill to amend the Engineers Registration Act by Cabinet in November 2021, consultations with stakeholders have since been concluded and the ministry is in the process of submitting draft instructions to Attorney Generals Chambers.”

Rra Molale cited the 500 staff houses which were demolished as there were rendered unsafe in Gaborone Block 5 some years ago. He thus implored Engineers to always produce good quality products so as to avoid wastage.

Honourable Molale further observed that many local companies have closed down due to inefficiencies and competition from foreign companies. He dared the engineers to combat corruption as it starts



Token of appreciation from the Host



from the procurement and tender processes. Local contractors and the government do not embrace home grown products such as the Kalahari sand building bricks innovated by BITRI. "These bricks are made from sand which is in abundance in the Kgalagadi region, a product which if utilized will reduce sand mining in rivers and the negative effects that come with it" he said, in an effort to encourage the use of local produce.

Minister Molale was also in awe that 'the country continues to import engineers when training could be done locally, there is need to impart necessary skills to harness the natural resources abundant in Botswana'. He believes at some point there should be skilled graduates from vocational centers. This will reduce unemployment among the youth and help with the wide skills mismatch gap. To demonstrate his conviction, Honourable Molale said students at the Palapye Technical College could be taught necessary skills for coal mining and afterwards employed at the Morupule Power plant to make use of their acquired engineering skills.

In his closing remarks he said, "Dear engineers, I implore you and all stakeholders to be at the forefront in the implementation of these recommendations in order to fully embrace the Fourth Industrial Revolution. Achievement of the Fourth Industrial Revolution is anchored on multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources. We must generate new knowledge through research, impart this knowledge experientially using new instructional methodologies, and support the practical use of this knowledge through mentorship programs. "

..there should be skilled graduates from vocational centers. This will reduce unemployment among the youth and help with the wide skills mismatch gap."

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We are back bigger and better – Engineer Clare Mosarwa



Engineer Clare Mosarwa : Standards Manager ERB

Engineering week was a Celebration of engineer's contribution to uplift society and economy

Integrity and professionalism have eroded over the years and its evidenced by unfinished projects and sub-standard engineering works

Engineer Clare Mosarwa is a woman of sterling qualities. This was evident from the personal and professional leadership quality that she demonstrated at the Engineering forum 2022. Her Leadership is a trait that reflects in her appreciation of the team effort by her subordinates and evident as well in the culmination of the positive feedback from the event. She is the Events Project manager and the Standards Manager of the Engineers

Registration Board. The many years she has spent at the board are evident from the passion and hard work that has gone into the various events she has organized highlighting engineers' plight over the years. At this year's forum she was sharing with the attendees where the project is coming from and where it is going. She also highlighted the resolutions from the gathering. Later she acknowledged the volunteers at the event who made it possible through

sleepless days. The ERB team also dedicated time and she is grateful for the teams that excelled in their duties.

In her opening statements She firstly demystified the name change by stating that many will remember that in 2019 the event was called Engineers Forum and now it is called the Engineering Forum. The idea now is to accommodate the other stakeholders at different levels who are not termed 'engineers' such as artisans ,technicians and students .

"As advertised on digital media and DSTV WE are back bigger and better. We wanted our engineering community to be able to experience and see a difference from 2019. Due to limited funds we had to come up with a week to celebrate the engineers



instead of organizing various activities for the single events. The theme of the event “Creative Engineering Value Chain – Advancing Towards Industry 4.0” takes me back to when Covid 19 started. I had admiration for front line workers who worked hard and relentlessly to help us get out of the crisis. I wish if engineers could show the same energy to help us get out of the plethora of challenges we face in the industry.” she said.

She expressed how at some point she was taken aback by the fact that other countries are looking at moving towards 5.0 from 4.0 but she hopes we can catch up soon.

Why this week and Engineering day theme?

Engineer Mosarwa explained that this engineering week was a Celebration of engineer’s contribution to uplift society and economy. The UNESCO world engineering day fell on the 4th of March. It is an official international day proclaimed in 2019 by UNESCO. The engineering day theme “Build Back Wiser: Engineering the Future”. The day is meant to celebrate engineering and world’s engineers for a better and sustainable world especially after been shut down by pandemic like everyone else. Engineers are being urged to come up with solutions to the disease affecting everyone globally and also provide solutions for the world to move on.

World engineering day for sustainable development theme challenges engineers to minimize pressure on resources amidst a growing global population. Therefore, there is need for a user centric approach to innovation and development so as to minimize pressure on resources.

Engineers must come up with infrastructure that generates publicly available, freely accessible data on the

internet for knowledge exchange and assistance.

There is a need to develop Infrastructure that facilitates universal access to green sources of energy, clean

“We believe if people talk about issues prevalent in honesty then they can turn around situations.”

water, sanitation and public services. Innovations such as these should bring solutions that are in line with this guide if they are to be relevant today and the future. Needless to say, Investment on research in sustainable sources of food; innovative farming; processing and green preservation technologies is

inevitable.

“Botswana Government has since banned importation of some vegetables. The decision at the time made the nation cry foul. I viewed this as an opportunity to make our country food sustainable and reduce importation.” She said.

Purpose of the Engineering Forum

- It Seeks to provide a think tank for engineering discussions on issues, amongst others, of national concern.
- Aims to use the platform to change the mindset of engineers, consumers and general public
- Bring players in the built environment, local and international engineering experts, policy makers, procuring entities and consumers of engineering services.
- Provide opportunity for dialogue on key topics that are of interest to the engineering community and other stakeholders.

Where are we Coming from:

The forum has been birth as a response to a need to enhance reputation of the profession. “We believe if people talk





Volunteer Staff also made the event a success



ERB Staff appreciation moment was heart warming

about issues prevalent in honesty then they can turn around situations.” She added.

The Integrity and professionalism has been eroded over the years, evidenced by unfinished projects, sub-standard engineering works, litigations and cost overruns. These can be addressed if we strive to restore integrity in the profession.

Objectives of the forum

- Facilitate discussions on issues and concerns, including those of national concern
- Address areas such as innovation and creativity in delivery of engineering services and projects
- Highlight role of engineering society in achievement of sustainable development
- Create effective partnerships amongst key stakeholders. “We have talked about synergy, if all players would connect and know each other then resources can be utilized better”.
- Provide a networking platform for all parties in the built environment including consumers of engineering services
- Mobilize engineering innovation and creativity discussions that will contribute to the national agenda on innovation and sustainability
- Provide platform for ideas to develop capacity in competence and opportunities for engineering graduates.

As the journey continues for this two year old event, Engineer Claire Mosarwa shared the events future with those present. She said that the event is planned to be annual as planned prior and inclusive of all stakeholders .They look to create a similar hybrid event to increase access meaning we have other engineers watching online.

At this year’s forum Eng.Mosarwa shared her uncertainty of registration numbers though she estimated over 300 engineers had attended .She said that in future she urges engineers to take note of deadlines as this hinders data collection which they use to get sponsorship and plan for the event in general.

Engineers Registration Board went all out to Advertise the forum in international media such as DSTV, local newspapers and radio. She however noted that they had limited resources and had to choose media stream with more effective at a lesser cost.

In closing remarks she thanked the volunteers presents ,ERB employees and nine sponsors who helped them solicit funds. .The Silver sponsors were CPP Botswana ,Debswana and GUC .Bronze sponsors were O3, ACEB, Kalcon, New Era College, ChinaState Construction ,Knight Piesold.

“We strive to build partnerships to grow the engineering profession for a sustainable future .Engineering Forum 2022 we are still Sowing the prospect”she said.

END



Forum Resolutions and take away from the Engineering Forums :

Minister Molale



Honorable Minister Molale from the Ministry of Infrastructure and Housing Development during his keynote address highlighted the success of the previous engineers forum 2019 and how it brought about various recommendations. A run down of how these forums came about was also elaborated in his address.

“The Engineers Registration Board instituted a survey in 2017 and its findings culminated in the Engineers Registration Board’s Marketing Strategy 2017 – 2020. One of the objectives of that strategy is to enhance the reputation of the engineering profession in Botswana, and hosting this Forum satisfies this strategic objective. The other objectives were related to registration and using appropriate platforms for communicating with Graduate engineers.”

The Engineers Forum and various

other seminars have generated recommendations on how the engineering fraternity - and other built environment professions - can embrace the Fourth Industrial Revolution so as to deliver engineering projects in a cost effective manner. Key among these recommendations are:

Organizations should adopt innovative project based business models in order to attain transformation from the old to the new. Employees at all levels should be skilled in programme and project management techniques especially the agile project management methodology;

- Educational institutions should experiment with new and innovative instructional methodologies and offer courses in new areas such as robotics and Artificial Intelligence (AI);
- Current engineering skills set are not relevant to fully adopt 4IR and engineers should be upskilled and reskilled. Therefore, current engineering curricula and pedagogical methodologies should be overhauled to generate 4IR relevant skills (agility, cultural awareness, robotics, AI, collaboration in multidisciplinary teams, EQ, STEM, arts, entrepreneurship etc.) and to explore innovative training pathways (experiential learning,

should be personalised and adaptive, should be delivered through digital technologies etc.)

- Corruption must be uprooted in all its facets from our systems especially at procurement stage;
- Engineers must incorporate sustainable development principles into their practice by developing processes that reduce waste, promote use of renewable resources, process natural resources efficiently with little or no waste, and reuse and recycle resources as part of the Value Chain Development under the Reset Agenda;
- Use of Renewable Energy Technologies (RETs) as an alternative to fossil fuels;
- Adoption of STEM – Science, Technology, Engineering and Mathematics - as an alternative educational methodology to prepare learners for the Fourth Industrial Revolution;
- Adoption of precision farming to increase food production. This calls for integration of robotics and big data;
- Employer Terms of Reference should be detailed in line



with existing the International Federation of Consulting Engineers (FIDIC) standard,

- New Engineering Contracts (NEC) standard or any other standard for that matter;
- Public projects should have built-in maintenance budgets as once delivered, these projects are hardly ever maintained. Previously in Government, every development project included a provision of 10 to 15% for maintenance and this has to be reinstated as we see many buildings dilapidate before being put into beneficial use.
- Employers should have nominated sub-contractors who take full responsibility for their part of the work and not depend solely on the principal contractor. This would be in line with Economic Inclusion Act and the re-enacted

Public Procurement Law. Furthermore, this would reduce project cost overruns and ensure good quality of services and products delivered;

- Examine the most feasible way of coming up with improved/enhanced Project Management techniques within my Ministry for all Public Infrastructure. A good example is the United Kingdom where they set up a Projects Authority which coordinates all public infrastructure projects in liaison with the treasury and reports directly to Cabinet; and finally,
- Practice Value Engineering where the Focus is on the front end of the project cycle where scrutiny is exercised in the planning stages to avert challenges later during execution including removing

ambiguity of Invitation to Tender.

- It is also at this level that decisions on innovative and appropriate technologies and green methods in the construction industry should be made.

The minister went on to implore engineers on how these recommendations must be a referral point and passage to how the engineering industry but be mannered.

"This clearly lays out the fundamental changes needed in policy, institutions and mind-set needed to transform Botswana from an economy that largely depends on mineral revenue to the one based on competitiveness, productivity, efficiency and openness. Our work should contribute to the four key priorities in the National Transformation Agenda" he said.



Resolutions from the Forum : *Engineer Clare Mosarwa*

Engineer Clare Mosarwa also came up with resolutions from the event. These namely are

Resolution 1:

There is need for robust coordination of research efforts at the national level. Improved coordination should set a national research agenda and define

research priorities, ensure collaboration, emphasize generation of "demand-driven" applied research data that can immediately be actioned into working prototypes that address current real life challenges.

Resolution 2:

There is an urgent need for the establishment of a research fund. For sustainability, the fund will raise money in various ways among them stakeholder contributions, donor support, a government levy etc. The

fund will provide financial support for: research and development (R&D) initiatives in academic institutions, corporate entities, technology/innovation incubation centres etc.; human resources development in R&D; and building national capacity to harness indigenous knowledge.

Resolution 3:

Women are disproportionately left out of STEM education. Consequently, they lose out on opportunities for upward mobility that come with STEM jobs and



the country loses out on this untapped talent. Therefore, affirmative action - skewed towards women - should be implemented in STEM oriented academic programme enrolment, scholarships and employment.

Resolution 4:

To attain user-centric planning and development, substantial investment should go into generating data that are reliable. So, the data should be produced by the users themselves and they should be engaged early and often

Resolution 5:

There is need for urgent development and enforcement of quality standards

for materials and products used in infrastructure development for purposes of safety and durability.

Resolution 6:

It is imperative to practice value engineering where there is focus on the front end of the project cycle and scrutiny is exercised in the planning stages to avert challenges and to integrate green technologies and methods for sustainability. Consulting engineers have the greatest opportunity at this, but all other built environment professionals can integrate green technologies and methods in all stages of the project continuum.

Resolution 7:

Given its declining fiscal position, government should explore PPPs as an alternative infrastructure development financing model. This will position government as a facilitator and will grant the corporate sector and development partners space to finance and implement infrastructure projects.

Resolution 8

There is need to demonstrate to farmers the efficacy of 4IR technologies, then incentivise or offer them subsidies for their adoption to improve productivity in agriculture.

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FAQ?

WHAT DOES THE PUBLIC BENEFIT FROM **ERB**?

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Build back wiser and build New wiser



Professor Masupe : BITRI Chief Executive Officer



Botswana Institute for Technology Research and Innovation (BITRI) is one of Botswana's leading science and research institutions. The man who is at the helm of all the productivity and breakthrough is Professor Masupe. He was in attendance at the Engineering week and gave the keynote address on Engineering day. He gave a brief rundown of what the days theme stands for and encouraged engineers to participate in finding solutions to community and national problems.

In relation to the engineering day theme "Build Back Wiser. Engineering the Future" Engineer Masupe said the day is conscious of the influence engineers have on the world. The theme is a direct acknowledgement to engineers. He urged engineers that when they come up with solutions they must create sustainable solutions for generations to come.

"Engineers are called to solve human problems and having spawned the modern age keep making tangible inventions making human lives safer. Engineers locally have done a good job and have made tremendous contribution in mines, bridges, communication infrastructure and various structures around the country. In responding to Covid 19 pandemic we have witnessed engineering in drugs development and associated supply chains. Given the uncertain times how as engineers can we craft the way forward?" he asked.

Engineering is a profession with a profound respect for math, science, precision and problem solving. There is no aspect engineers cannot apply their craft. It's the work which links science discovery and society needs. Science builds on how the natural world works and engineers build on that knowledge to create solutions. Engineers and scientists have to collaborate to provide solutions. At BITRI it is their sole

mandate of coming up with sustainable and appropriate technology solutions. The now retired engineering Professor shared the current successful development happening within his establishment. "BITRI has currently developed medical and dust masks using nanofiber tech material. These masks were subjected and certified at an accredited laboratory in South Africa and passed. Nelsen labs in America tested the masks for viral filtration and exhibited 99.6 % to 99.9 % of known bugs. BITRI In collaboration with the National Health Lab they were successful in sequencing Covid 19 virus in Botswana . By studying that viral genome, we can develop diagnostic kits and medication."

let us build on challenges and build Botswana to make better life for our communities and advancement through designs and inventions. In creating these solutions it's important to remain authentic that is, to infuse our culture in these innovations at the same time being mindful of challenges such as global warming, climate change, poverty and unemployment and slow economic growth all over the world

At the end of February 2022 a little above 8000 engineers out of over 16000 practising engineers are not registered .As engineering community we need to take professional regulation seriously. It is our duty to mentor ,recruit and encourage the girl child to take up engineering. Only 14 percent are female practicing and registered engineers. "Let us go out there and build back wiser and build New wiser" he concluded



Did You Know !!

Professor Shedden Masupe assumed the role of Chief Executive Officer of the Botswana Institute for Technology Research and Innovation (BITRI) with effect from 1st October 2017. Prof Masupe joined BITRI in 2014 as Executive Director – Technologies from BIUST.

Prof Masupe graduated with a BSc in Mathematics and Physics from Mount Allison University, Canada, and a BSc Eng., Electrical Engineering (Communications and Fields) from University of New Brunswick, Canada. He also has an MSc in Electronics Engineering (Digital Systems) from Cardiff University, and a PhD in Electronics Engineering attained from Edinburgh University in the United Kingdom.

Prof Masupe is a highly driven and experienced executive with a sound track record acquired over 20 years leading academic and research teams Prof Masupe is a versatile ICT professional who has the ability to impact an organization through Cultural Change and Enterprise Architecture. He has provided mentorship to professionals in the ICT field, lead research and teaching activities at UB as Head of Department of Electrical Engineering Department as well as Associate Dean of College of Engineering at BIUST.

Botswana Institute for Technology Research and Innovation



Let us engineer the future of honesty : Eng. Sebusang Sebusang



Engineer Sebusang Enele Sebusang : BITRI Executive Director

Botswana engineers celebrated the world Engineering day on the 4th and last day of the engineering week. The World Engineering Day for Sustainable Development was proclaimed by UNESCO at its 40th General Conference in 2019.

It is celebrated worldwide on 4th March of each year since 2020 as a UNESCO international. The day offers an opportunity to highlight engineers and engineering's achievements in our modern world and improve public

understanding of how engineering and technology are central to modern life and for sustainable development.

Engineering plays a key role in achieving the UN Sustainable Development Goals (SDGs) as it utilizes the principles of science and mathematics to develop practical applications in food, water, energy, environment, sustainable cities, natural disaster resilience and other areas which are crucial to all mankind. It is also crucial to the development of new technologies enabling the 4th Industrial Revolution such as artificial

intelligence, Internet of Things, robotics or quantum computing, etc. Engineering is at the heart of our modern world and will shape the future, as has been the case for millennia.

The opening statement for the day was made by Sebusang Enele Sebusang who is the Executive Director, Technologies at Botswana Institute for Technology Research and Innovation – BITRI. He is a former Senior Lecturer, Control and Dynamics (University of Botswana). His Specialties: ICT policy development; ICT use and access research (now



implementation); perception studies; control engine. Hierarchy; project management. He spoke in an ERB board member capacity.

Mr Sebusang said the day is 3 years old today and it is there to celebrate value of engineers and engineering to people and society. Engineering is about improving quality of life. The day is to pause and focus on value of engineering and how it provides to modern life. The day is more about highlighting what engineers need to have in terms of sustainable solutions. "We may not have a public profile like other professions but we still are a critical cog in development. Botswana today joins the world in this celebration," he said.

The Theme for the engineering day, "Build Back Wiser. Engineering the Future." Is celebrated in context of how the pandemic affected jobs and economy and even deaths. As engineers, we need to put in place systems that in spite of circumstances should come out better.

"Engineering is not ethical but engineers need to be ethical. Let us HOLD Each other accountable on corruption. We nip it in the bud. It's easy to apportion blame to leaders but we should be the solution. Let us engineer the future of honesty. Do not take up jobs at half value and then cut on quality."

In closing he said that we are all challenged to maintain ethical practice

and must take something from the forum and later talk about learnings that have pushed the profession forward."

In order to truly 'build back wiser', to adapt and transition, engineers also need to demonstrate value. Value for investors in terms of economic and financial returns, tangible environmental and social impact and sound climate risk management. They need to think holistically and go beyond the traditional drivers of engineering outcomes – quality, cost, time – to include environmental, social, and humanitarian impacts.



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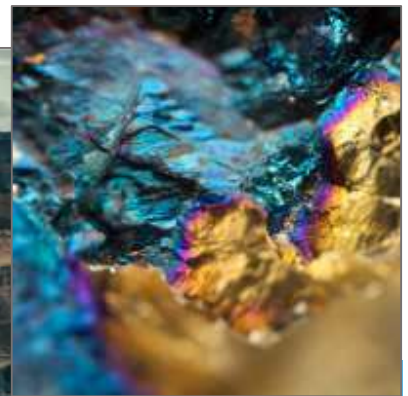
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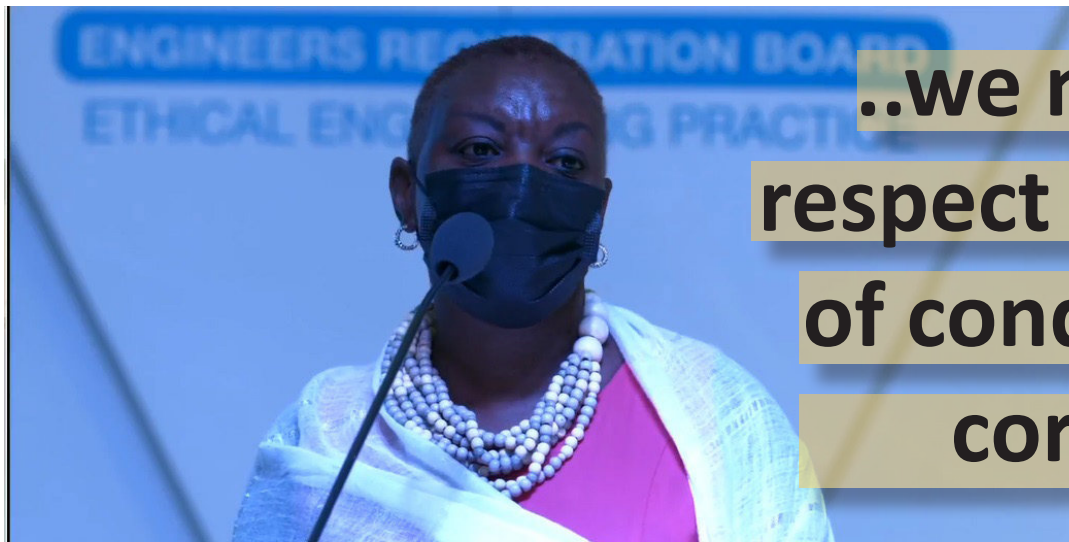
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- Mine design optimisation
- Project development and review
- Stochastic modelling and Monte Carlo analysis;
- Resource and Reserve statements
- Strategic Business Planning



Abmincon Botswana wishes ERB a Happy 10th Anniversary!





..we now lack respect because of conduct and corruption.

Engineer Linda Moseki : SAFEO President and Former BIE President

Engineering day was on the 4th of March 2022. This day marked the last day of the ERB Engineering week. The week has three days dedicated to a forum and the 4th day fell on the international engineering day. Engineer Linda Moseki gave a vote of thanks and closing remarks for the whole event.

Engineer Moseki is a trailblazer in her own right. She has managed to make a career worth mentioning when speaking about the mount rushmore of the VIP in Botswana engineering sector. She is a Professional Engineer (Civil Engineering) with over 20yrs experience in infrastructure designs and construction supervision. She has been a Resident Engineer supervising infrastructural and Landfill projects.

A former President of the Botswana Institution of Engineers, Linda's passionate about mentoring youth, training and developing young girls and boys to make Engineering a career of choice. She currently is President of Southern Africa Federation of Engineering Organisations (SAFEO)

Eng. Moseki said that this is the day the engineering fraternity can look back at what it has gone through, be it success or challenges. She took time to acknowledge Rra Kgoboko's presentation on the Kazungula Bridge. As the former Botswana Institute of Engineers President she reiterated the institutions mantra: Engineers make it happen. An example she cited was the Kazungula bridge. The Engineer explained how the size and complexity demonstrates that engineers locally can make it happen.

"In a nutshell presenters were centered on the theme, Build back wiser. We as engineers must reflect on our own challenges or successes as individuals, organizations or institutions. The board chairman Mr Sebusang said we need to focus on goals. Are we ready and is what we are doing ethical? He touched on corruption and what are we doing about it as engineers? Are we doing value engineering? The question as engineers is are we going to allow new innovations to proceed without testing. Institutions what are your goals for the upcoming year? What impact are you

looking to make? We have senior wise men and ladies who are experienced, they can mentor the young as a way to build back. Are you registered? Improve on registering to add value to the profession. Remove apathy on engagement meetings. Stop selling registration certificates and allow ERB to monitor the sector. You can agree with me that as engineers we now lack respect because of conduct and corruption," she emphasized.

In her conclusion she encouraged the need to urge other females to join the engineering sector. "Only 14 % of our ladies are registered engineers. Let us encourage and mentor each other."



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“If you can’t measure it, then you can’t manage it..”

- We need to develop Botswana Specific Models that use our localized assumptions instead in international Models.
- BIUST has formed “BIUST Enterprise Limited” specifically to generate third stream income to reduce over dependence.

Botswana International University of Science and Technology’s Department of Mathematics and Statistical Sciences has launched a Statistical Service Services Unit.

This Unit (SSU) was established to serve as a capacity building mechanism to help address the challenges identified within the BIUST research groups, parastatals, private sector, as well as regional and global communities. These challenges include and are not limited to the deficiency in statistical literacy, statistical computing

skills and Inadequate knowledge on appropriate data or type of statistical analysis to be used or deployed. Setting up this unit has befit well within the BIUST strategy roadmap since it will address the knowledge deficiency through the provision of advice and technical services within the University and beyond.

The theme of this launch is “Statistical Collaboration for a Knowledge-Based Economy and Sustainable Development’. The aim of the launch is to create BIUST statistical analysis and data





Mr Robert Selato who is Manager, Research, Monitoring and Evaluation of National AIDS & Health Promotion Agency (NAHPA)



science capacity by providing advice and technical services within the university. The SSU will foster mutual beneficial contacts between the University and the wider community in dealing with real-world issues in a critical and robust manner.

Acting BIUST Vice Chancellor Professor Elisha Shemang gave the opening speech from the virtual Statistical Service Services Unit Launch and gave it the desired mileage.

He acknowledged the attendees and outlined to them how important this Unit is to the University and what the collaboration means to the community and the nation.

“Today’s launch of SSU is to ensure that BIUST as a national strategic initiative to serve as one of the key platforms for transforming Botswana’s economy from resource based to a knowledge-based economy is realized through skills capacity in Science Technology

Engineering and Mathematics (STEM) field. The SSU is properly aligned with BIUST strategy, the two main core services that

“If used correctly, statistics tell us trends in what happened in the past and can be useful in predicting what may happen in the future”

will be provided by the SSU are identified as follows: consulting Services on different statistical issues and general training services through short courses, “he said.

Professor Shemang also explained further that, “BIUST has formed “BIUST Enterprise Limited” specifically to generate third stream income to reduce overdependence on Government





Chief Financial Officer, Bank of Botswana : **Mr Daniel Loeto**

subvention. Therefore, SSU is within our strategic move, and more initiatives will be realized at the appropriate moment, as we embark on our drive to aggressively generate the Third Stream Income.

We have already formed a committee to look into the generation of the third stream income, chaired by Dr. Bonny Matshediso, Acting Director, Mining Centre, which also provides consultancy services to the Mining Sector. Postgraduate

Students will from time-to-time form part and parcel of the consultancy as part of their learning and skills development and enhance self-employment creation in their future aspirations.”

Mr Robert Selato who is Manager, Research, Monitoring and Evaluation of National AIDS & Health Promotion Agency (NAHPA) also attended the virtual launch and gave his perspective on importance of statistical data in the Health sector.

“statistics form the basis for informed planning. As the saying goes: If you can’t measure it, then you can’t manage it. This simply emphasizes the need for data to inform action in a knowledge-based Economy as alluded by theme of today. The use of data, especially statistical data, in the health sector especially in mitigating against HIV and AIDS has been crucial in major decision making and program implementation. Our decision to



implement treat All and offer ART to all individuals that test Positive for HIV was based on statistical evidence and science.

We do mathematical modelling for HIV and AIDS and very soon we may do the same for Non-Communicable diseases, which presents an opportunity for collaboration and consultancy,"he explained.

" We need to develop Botswana Specific Models that use our localised assumptions instead in international Models that have a tendency to over-estimate or under-estimate our figures. This requires good collaborations between the University experts and us the service users. For example, in South Africa they have developed the localised Model called the Thembisa Model to estimate and project their HIV and AIDS statistics.

They do not rely on the generic UNAIDS SPECTRUM Model.

As part of giving back to the

community or a project collaboration this unit should strive to close existing knowledge and service gaps and jointly develop such Botswana-based models."

Chief Financial Officer, Bank of Botswana & Chairperson of the Department of Mathematics and Statistical Sciences Industry Advisory Board Mr Daniel Loeto was guest speaker at the launch. Mr Loeto explained the terminology surrounding statistics and how statistics is used in daily operation.

These industries are namely but not limited to Insurance Industry, medical insurance, the pension funds industry, risk management and quality testing.

In concluding remarks Mr Loeto said , "if used correctly, statistics tell us trends in what happened in the past and can be useful in predicting what may happen in the future. It is indeed my sincere wish that the Statistical



Services Unit being launched here today is going to stand the test of time and put the Department of Mathematics and Statistical Sciences at BIUST in good stead. It will grow in leaps and bounds. It is my sincere hope that the Statistical Services Unit we are launching today will go a long way in ensuring that the University and those that the Unit intends to serve get the full benefits that could be derived from the correct interpretation and use of statistics."



Chief Financial Officer, Bank of Botswana
Mr Daniel Loeto

Vaccine Manufacturing Plant to be established in Botswana

▲ proposed Botswana vaccine plant has been commissioned to open in 2026. This is part of a push by African countries to have more vaccines produced on the continent after an initial scramble for Covid-19 inoculations left the continent struggling to secure supplies.

is also the founder of NantWorks, a network of healthcare, biotech, and artificial intelligence startups.

breakthrough that will see us, as not just a consumer, but also a manufacturer of vaccines and other medications that will come out of this magnificent project.

Dr. Patrick Soon-Shiong, a South African-American transplant surgeon, billionaire businessman, bioscientist, and media proprietor is the inventor of the drug Abraxane, which became known for its efficacy against lung, breast, and pancreatic cancer. He

Dr Edwin Dikoloti said this day marks a new level in our scientific development.

Director of Ceremonies, Your Excellency the President, developing countries like Botswana have always experienced insufficient supply of medical commodities and other goods and services necessary for the improvement of the lives of their people. “he said.

It marked the commencement of a new pharmaceutical chapter in Botswana. “ It signifies a new technological

Botswana was not an exception from this global imbalance that has so far left many





Botswana President Masisi being presented the vaccine by Dr Patrick Soon-Shiong

families broken and deceased. At a time when the country was in dire need of COVID-19 vaccines, there were very little vaccine doses availed, despite the country's exhaustive efforts in securing and procuring these vaccines.

“Not only will their coming help us in the fight against COVID-19 but also in our other many challenges like in the fight against cancer. We are truly thankful to you Dr Soon-Shiong. We cannot thank you enough for this great decision to set up in our country.

The people of Botswana will forever be indebted to you for this live saving decision. It is a truly big step in helping us address medical supply imbalances already alluded to. This development will indeed help us respond to other public health emergencies that

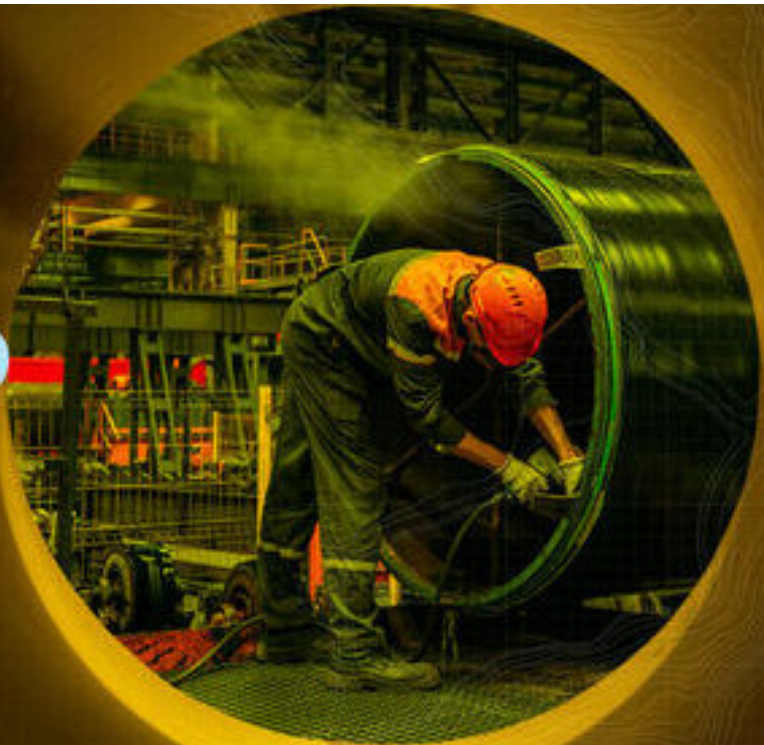
may arise.” the Minister said.

Many Botswana scientists and researchers including those from the health ministry will benefit from the skills that Nant Botswana brings.

Honorable Edwin concluded by thanking the President and Nant Works founder making this opportunity possible. “we look forward to this great project and can't wait to see it take off.



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FAQ?

**Is it illegal to work as an
engineering professional whilst
not registered with **ERB**?**

YES and it could result in some serious
consequences



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