

The *Engineering* Echo

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Also Inside this Edition



Eng. Abel Ng'andu Retains EIZ Presidency

4



Engineers Challenged to provide solutions to local challenges

6



Government ready to work with Local Engineers

9



Women in Engineering add Significant Value to the Engineering Fraternity - Moseki

13

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EDITORIAL COMMENT



Eng. Prof. John Siame (D.Tech., FEIZ, REng., SAIMM)

The stories in this 61st issue of *Engineering Echo* of the Engineering Institution of Zambia (EIZ) covers areas of elections of 61st Engineering Council of EIZ, roles of Engineering Professionals in providing engineering solution to local challenges, conferment of forty-three (43) members to the class of fellow and many more stories. These activities took place at the 2022 EIZ Annual Symposium and 65th EIZ Annual General Meeting from 20th to 23rd April 2022 in Livingstone, Zambia at AVANI Vitoria Falls Resort under the theme “*Engineering for a Changing World*”.

The story on elections covers the aspects of elections of the council members to the 61st Engineering Council to run EIZ for the next two years. This was tightly contested

elections which saw the 60th EIZ President Eng. Abel Ng'andu retaining his seat as the President of EIZ and the 61st Chairperson of the Engineering Council. The position of Vice President Policy, Public Relations and National Development went to Eng. Kennedy Musonda while the positions of Vice President for Membership and Continuous Professional Development and Vice President Finance and Administration went to Eng. Sharon Musonda and Eng. Diana Kangwa-Muya, respectively.

Engineering professionals were once again challenged to provide solutions to local challenges. The President of the Republic of Zambia, His Excellency Mr. Hakainde Hichilema said this in a speech read on his behalf by Minister of Infrastructure, Housing and Urban Development Hon. Eng. Charles Milupi during the official opening of the Engineering Institution of Zambia (EIZ) Annual Conference.

Speaking at the same function, Minister of Green Economy and Environment Eng. Collins Nzovu called on the engineering professions to quickly transition to cleaner and renewable energy and promote sustainable transportation seeing that the country has a large potential for solar power development.

EIZ, through its President Eng. Abel Ng'andu echoed that the institution is more than ready to offer engineering advice and solutions to the new dawn government because the onus is now on engineering professionals to play the role of professionals and give the right advice to the government in order to help develop this country.

At the EIZ gala dinner held in Livingstone at Avani Victoria Falls Resort, the Permanent Secretary of the Ministry of Water Development and Sanitation Eng. Joe Kalusa assured the government's support to the institution.

In conclusion, on behalf the Publication and Editorial Committee and indeed on my behalf, I wish to congratulate the EIZ President Eng. Abel Ng'andu and the team for been elected to the 61st Engineering Council and wish them all the best as they execute their work as council members.

To the outgoing editorial team, it was great working with you and I wish you the all best. Without your dedication and hard work, this could not have been possible.

May I now invite you to read this issue of *The Engineering Echo*, which highlights some of the EIZ activities. I wish you a pleasant reading.

CONTENTS

Eng. Abel Ng'andu Retains EIZ Presidency	4
Engineers Challenged to provide solutions to Local Challenges	6
Government ready to work with Local Engineers	9
Engineering plays Critical role in the changing World - Mukutuma	12
Women in Engineering add Significant value to the Engineering Fraternity - Moseki	13

EDITORIAL CONTRIBUTION

Engineering Echo is your publication and is published for the enjoyment of all members of EIZ. Your contribution in form of articles, letters, comments, ideas or anything you wish to share with others will go a long way in meeting the objectives this newsletter is set to achieve. All news will be considered, however, the editor reserves the right to include, change or omit articles at his discretion.

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ENG. ABEL NG'ANDU RETAINS EIZ PRESIDENCY

By Cynthia Ngwengwe



Eng. Abel Ng'andu

The Engineering Institution of Zambia (EIZ) held its 65th Annual General Meeting on 23rd April 2022 to elect its 61st Engineering Council to run the Institution for the next two years.

In a tightly contested election, EIZ 60th President Eng. Abel Ng'andu retained his seat as the President of EIZ and the 61st Chairperson of the Engineering Council after beating his opponents, Eng. Wesley Kaluba, Eng. Charity Chola, contesting for the same position.

The position of Vice President Policy, Public Relations and National Development saw Eng. Charles Shindaile and Eng. Kennedy Musonda competing for the position with Eng. Musonda emerging as the winner.



Members celebrating after the announcement of results

Eng. Monica Milupi re-contested her position of Vice President for Membership and Continuous Professional Development with Eng. Sharon Musonda contesting for the same position. Eng. Sharon Musonda scoped the position.

The position of Vice President Finance and Administration was

won by Eng. Diana Kangwa-Muya who beat her opponent Eng. Happy Musumali.

The position of Engineers' representative was contested by Eng. Nathan Kazembe, Eng. Chiza Nyirenda and Eng. Waddy Nkandu Sakeni. The position was scoped by Eng. Chiza Nyirenda.

Tec. Jane Manase was elected as the Technicians' representative after beating her opponent Tec. Peter Likando Nalwendo.

The positions of Technologists' representative, Craftsperson's representative, Organisations' Representative and Units' Representatives did not receive any

valid nominations, and positions will be filled by the 61st Engineering Council according to the EIZ Constitution.

The Institution was also scheduled to hold disciplinary Committee and Craftsperson's and Technicians sections elections. The elections did not take place as most of the

positions went unopposed, uncontested or did not receive valid nominations.

The members who went unopposed on the disciplinary Committee were Eng. Elson Banda and Eng. Masanza Musompa as committee members.



Front roll: Members of the Nominations and Elections Committee

The Chairperson of the Craftspersons and Technicians Section was taken by Mcra. Field Simwanda who went unopposed, the Vice Chairperson position went to Tec. Kennedy Chipoma, Tec. Fridah Like is the female Technicians representative while Tec. Regan Chilufya will represent the male technicians on the Committee.

The rest of the positions on the committees will be filled by Council once it starts its sittings.



EIZ Secretariat verifying members' details before voting

ENGINEERS CHALLENGED TO PROVIDE SOLUTIONS TO LOCAL CHALLENGES

By Cynthia Ngwengwe



Hon. Eng. Charles Milupi

The role of Engineering Professionals is critical to the attainment of sound and quality infrastructure that will facilitate economic activities and growth of the country's economy.

President Hakainde Hichilema said this in a speech read on his behalf by Minister of Infrastructure, Housing and Urban Development Hon. Eng. Charles Milupi during the official opening of the Engineering

Institution of Zambia (EIZ) Annual Conference held in Livingstone.

“The world is changing and the engineering field is driving that change, I therefore urge our engineers in Zambia and on the continent at large to be more critical, creative, innovative and help governments address social and economic challenges facing our people and countries,” he said.



Members of the 60th Council during the AGM proceedings

The President challenged engineering professionals to provide solutions to local challenges faced by the people and not wait for solutions developed from outside in different environments from ours.



Hon. Eng. Collins Nzovu

He said, in a technologically advanced world, there is need for engineering professionals to bring complex ideas and theories into reality by applying the principles of mathematics and science.

He further said engineering professionals should provide answers to the most complex and difficult challenges facing humanity, including in the area of health, food security and climate change and be at the centre of efforts to achieve sustainable development through innovations that protect natural resources.

“Engineering must provide methods for efficient utilisation of fragile natural resources and ecosystems by current generations, without compromising the ability of future generations from benefitting from those same resources,” he said.

Mr. Hichilema further said the New Dawn government is open to new ideas and contributions from professionals such as the engineering professionals to help in developing the country and address some of the challenges the country is facing such as in the energy sector, infrastructure development, water and sanitation and many other sectors of the economy.

“My government through the recently approved 8th National Development Plan, will implement policy measures to promote economic transformation, particularly in job rich sectors of Agriculture, Mining, Tourism, Energy, Commerce and Industry, Green economy, Transport as well as Information and Communication Technology,” he said.

He said government recognises the contributions made by the (EIZ) over the years in the development of the country and appreciates the long and cherished history of practice, service and excellence to the people of Zambia.

The President however expressed disappointment at the failure by many professional bodies to safeguard public interest in the past, particularly on matters of over-priced infrastructure projects, certification of poorly executed works and failure to offer advice and guidance to government on project implementation.

He said the Institution has a critical role in ensuring that government projects attain value for money through correct pricing, quality infrastructure and timely executed projects.

He further said government is currently struggling with massive legacy debt, mostly in the infrastructure sector, and engineers cannot escape from shouldering part of the blame for the situation “we find ourselves in as a country.”

“The massive debt is a result of projects that were designed, costed, approved and executed by engineering professionals, who are members of the Institution. Procurement of over-priced projects was superintended upon by engineers, poor quality works were approved by engineering professionals, delayed execution of works resulting in unnecessary costs associated with standing time were approved by engineering professionals,” he said.



Members during the official opening



Members during the official opening

Speaking at the same event, Minister of Green Economy and Environment Eng. Collins Nzovu called on the engineering profession to quickly transition to cleaner and renewable energy and promote sustainable transportation seeing that the country has a large potential for solar power development.

“Our traditional ways of growing the economy where natural resources are utilised without due care to sustainability are no longer sustainable or even durable, we need to transition into a green economy, one which is low carbon, resource efficient and socially inclusive,” he said

Eng. Nzovu said the theme “Engineering for a Changing World” resonates very well with the mandate of the Ministry of Green Economy and Environment which is to promote sustainable use of environment while at the same time facilitating support for adaptation to and mitigation of the effect of climate change through bio safety, carbon credit policy, climate change policy, environmental policy and green economy and forestry policy.

He said the new dawn government endeavours to green the economy and promote sustainable development, and this requires implementation partnerships.

“Government has placed environmental sustainability as one of the major pillars in the 8th National Development Plan to ensure a well-managed environment, economic recovery, sustainable growth, improved health care and improved livelihood of our people,” he said.

He further said the Ministry has intensified education and awareness to raise aspirations of a green growth so that the citizenry understands what they need to do to contribute to the actualisation of a green economy.

“Engineering in at the forefront of developing the green economy, and if we look at the task ahead, it is impossible to achieve this without engineers providing the relevant solutions because it is engineers that source solutions. Therefore, the EIZ and its members are critical in this transition,” he said.

Eng. Nzovu said engineering should no longer be associated purely with supervision, small

construction works, but with more designs of answers to the climate challenges, more green jobs and more career possibilities for our growing population.

“I want to see EIZ drive the process of green engineering through outreach programmes, engagement of engineering industry, communities and stakeholders in the development of engineering solutions,” he said.

EIZ President Eng. Abel Ng'andu said the Institution is more than ready to offer engineering advice and solutions to the new dawn government because the onus is now on engineering professionals to play the role of professionals and give the right advice to the government in order to help develop the country.

He said the Institution already met a number of ministers with whom the importance of engaging qualified engineering personnel in their structures was stressed.

“The EIZ has a special focus on building the engineering profession in the country by ensuring that engineering professionals working in the country have a charge-out-rate and ensure that it is enacted as law and will be of benefit to the engineering profession,” he said.

He further said engineering professionals are the life-blood of any society and innovation is at the heart of what every great engineering professionals does and finding the balance between solving problems that need to be fixed, and being creative in order to do so is an important part of any engineering professionals life.



Members during the official opening

GOVERNMENT READY TO WORK WITH LOCAL ENGINEERS

By Cynthia Ngwengwe



Eng. Joe Kalusa

Ministry of Water Development and Sanitation Permanent Secretary, Eng. Joe Kalusa says government will support the Engineering Institution of Zambia (EIZ) to ensure there is an increase in the number of local engineering professionals involved in the development of infrastructure of the country.

Speaking when he officiated at the EIZ gala dinner held in Livingstone at Avani Victoria Falls Resort Eng. Kalusa assured the Institution of government's support.

"I wish to emphasise that it is through collaboration amongst all stakeholders that our development agenda will be achieved," he said.

He said the continued co-operation and support by government partners in the development of the country is highly appreciated without which the provision of accurate, timely and reliable developmental strategies would not be possible.

Eng. Kalusa said the efforts made by the (EIZ) with the help of other stakeholders cannot be overlooked.

He further commended the institution for organising an event that brought great minds together to discuss and share ideas on engineering and national development.

He said it was his expectation that the topics shared during the days of the conference would assist in generating ideas for the betterment of society.

Eng. Kalusa also called on the senior engineers to step up, encourage and mentor the young ones to recognise engineering as a rewarding profession.

And in his acceptance speech after being elected as the EIZ President and Chairperson of the 61st Engineering Council, Eng. Abel Ng'andu thanked the members for giving him another term to run the affairs of the Institution for the next two years.

"Thank you for entrusting me with the responsibility of running the affairs of the Institution. Your trust in the election of the 61st Engineering Council is greatly appreciated," he said.

Eng. Ng'andu said this was not time to relax, but time to work towards achieving the set goals of the Institution as guided by the Institution's Strategic Plan.

Continues on page 12



The audience during the EIZ Gala Dinner in Livingstone

Photo Focus



Eng. Abel Ng'andu poses for a photo with pupils after the young Engineers' forum in Livingstone



Left to right Engineering Council of South Africa President Pr. Eng. Refilwe Buthezi and Southern Africa Federation of Engineering Organisations President Eng. Linda Moseki during the EIZ Gala Dinner in Livingstone



Members of the Zambia Women in Engineering Section (ZWES) poses for a photo with SAFEQ President Eng. Linda Moseki



Pupils from various schools in Livingstone during the Young Engineers' Forum



Zambia Women in Engineering Section (ZWES) Chairperson Eng. Ennie Muchelemba during the Women in Engineering Conference held in Livingstone



Publications and Editorial Secretary Eng. Grain Munakaampe moderating during the official opening



Past President Eng. Kennedy Nyirenda helps Minister of Infrastructure, Housing and Urban Development Hon. Eng. Charles Milupi put on his fellow jacket after being conferred as Fellow



Members after being conferred as Fellows

Photo Focus



ZESCO Stand



Eng. Kabwe Musonda attends to Zambia National Services Commandant Lt. Gen. Eng Maliti Solochi during the EIZ Expo



CAMCO Stand



Prudential Stand



Bridging Gap Solutions Stand



Ultraspec - NDT Stand



Zambezi River Authority Stand



Rural Electrification Authority Stand



EIZ President Eng. Abel Ng'andu presents a shield to SAFEO President Eng. Linda Moseki during the EIZ Gala dinner in Livingstone

He further said this was the time to deliver as the political will has never been stronger than it is now.

"The time has come to set the right course for our Institution while we still can, the agreements we have adopted in our conference must be comprehensive and deliver on all major questions across the building blocks," he said.

He called on the members to work as a team in order to achieve set objectives which can only be done if there is teamwork.

ENGINEERING PLAYS CRITICAL ROLE IN THE CHANGING WORLD - MUKUTUMA

By Cynthia Ngwengwe

First Quantum Minerals (FQM) General Manager Mr. Anthony Mukutuma has said engineering professionals have a key role to play in enhancing productivity, economic growth and social development, not just in mining, but also across all sectors of the economy for the country to achieve growth in the changing World.

Mr. Mukutuma was speaking during the Engineering Institution of Zambia (EIZ) Annual Conference held at Avani Victoria Falls Resort in Livingstone.

He said engineering professionals should ensure that the country's natural resources are exploited efficiently and responsibly, replenishing that which can be replenished, and transforming that which cannot into forms that add value, to the benefit of society.

Mr. Mukutuma said engineering professionals are responsible for creating the machinery, transport and mobility infrastructure and communications systems that we all rely on to better our lives, business, and the economy; therefore, the need for all engineering professionals to take up the front role in developing the country.

He added that engineering professionals in the mining sector contribute almost 80% of Zambia's export earnings, 11% of GDP and more than 31% of government revenue and all these things are equal, if the environment is right and enabling.

He said engineering professionals provide the much-needed employment for the Zambian people, tax revenue for government, and development that uplifts the livelihoods of communities.

"Now is the time in the history of our country when we need to address inadequacies in engineering education and shortage of technical skills, and absence of technical creativity," he said.

He said that both young and old engineering professionals have creative minds that are capable of shaping things that generate wealth for the benefit of the people of Zambia.

Mr. Mukutuma added that FQM has identified skills training as a key driver of long-term sustainable employment in the mining sector, and as the country's largest Copper Miner they have put in place comprehensive skills development programmes that are already helping to improve operations at Sentinel Mine in Kalumbila and Kansanshi Mine in Solwezi.

He said Kansanshi Mine has embarked on a new training programme to mold talented staff into capable leaders.

“FQM is also running a General Manager’s leadership development programme that builds on the success of the CEOs’ training programme from which seven talented employees received mentorship and training in senior management roles,” he added.

He said a total of 6,475 students have undergone training and FQM continues to be an equal opportunity employer and embraces Zambia's diversity.

Mr. Mukutuma added that Zambia would benefit more from its mineral wealth through increased production and employment.

He challenged scientists, engineering professionals, research institutions and universities to rise to the occasion and begin to explore possibilities of developing vaccines, medicines and appropriate technologies to respond to current and emerging issues.

WOMEN IN ENGINEERING ADD SIGNIFICANT VALUE TO THE ENGINEERING FRATERNITY - MOSEKI

By Abigail Hampande



Eng. Linda Moseki

Southern African Federation of Engineering Organisations President Eng. Linda Moseki has said it is the responsibility of every engineering professional to elevate the status of the engineering profession and provide it with the prestige and influence to play the role it must play while creating sufficiently flexible and satisfying career paths to attract a diverse population of outstanding female engineering students.

Speaking during the 4th Women in Engineering Conference held at Avani Victoria Falls Resort, in Livingstone, Zambia Eng. Moseki said women in engineering have contributed to the changing world

from modern homes, bridges, space travel, cars and the latest mobile technology.

“Innovative ideas are at the heart of what engineering professionals do, and they use their knowledge to create new and exciting prospects and solve any problems that may arise,” she said.

Eng. Moseki said women in engineering need to add significant value to the engineering fraternity through greater intellectual span, capacity to innovate, entrepreneurial zeal, and ability of women to address the grand challenges facing our world.

She said having different perspectives or ideas can bring true innovation and female engineering professionals are doing exactly that, providing that edge needed when it comes to creating and designing.



Delegates during the Women in Engineering Conference

Eng. Moseki said the fundamental knowledge undergirding engineering practice increasingly requires research at the extremes, from the microscopic level of bio medical engineering to the larger level of global systems such as building bridges, solar farms, and satellites as well as the mastery of new tools such as cyberinfrastructure and quantum engineering.

She said there is need for government and industry to support women in long-term basic engineering research necessary to build the knowledge base key to addressing society's needs.

She further advised women already in the engineering career to encourage more women to take up engineering as a career and by ensuring that more girls gain interest in STEM in order for them to enroll in colleges and universities that offer engineering.

“Our African countries expect more engineers to transform and offer solutions that will continue to shape the African continent and the world at large,” she said.

She said with the changing world, women in engineering are significant to the recruitment and retention of more women in the profession, as well as women engineers' career planning and development.

Eng. Moseki said engineering practice in a rapidly changing world require an ever-expanding knowledge base for engineering research that better links scientific discovery with innovation.



Eng. Deena Morgan

“The complex challenges that our nations are facing require professional skills such as innovation, entrepreneurship, and global engineering practice,” she added.

And guest speaker at the same event Eng. Deena Morgan said efforts to work with men and boys must be considered as part of a larger effort to promote gender equality in a changing world.

“A gathering of specialists from around the world underlined the importance of males working as allies with women and recognising the feminist movement's leadership and contributions,” she said.

She said the key reason for the delayed progress towards gender equality is failure to appropriately raise the awareness of men and gain their active cooperation.

“Gender equality affects both men and women therefore, progress in this area necessitates the participation of both men and women” she said.

She added that effective policies and actions to increase men's roles in achieving gender equality require a better understanding of prevailing stereotypes and expectations about men's roles and responsibilities, and how they influence male attitudes and behaviour, as well as the ways in which boys are socialised to become men.



MORE FELLOWS CONFERRED

The Engineering Institution of Zambia (EIZ) has conferred the class of fellow on Minister of Infrastructure, Housing and Urban Development Hon. Eng. Charles Milupi, Minister of Green Economy and Environment Hon. Eng. Collins Nzovu and Zambia National Service Commandant Lt-Gen. Eng. Maliti Solochi during the EIZ annual Symposium held in Livingstone at Avani Vitoria Falls Resort.

The full list of members who were conferred during the same event were as follows;

1. Eng. Anthony Mukutuma
2. Eng. Bertha Mwamba
3. Eng. Boniface Lyama
4. Eng. Chansa Kapema
5. Eng. Charles Lubasi Milupi
6. Eng. Chrispin Liwoyo Kahongo
7. Eng. Christopher Chisense
8. Eng. Cliff Yabe Bwalya
9. Eng. Collins Mulenga Chabuka
10. Eng. Collins Nzovu
11. Eng. Dennis Malambo
12. Eng. Dunstan Chola
13. Eng. Edith Vwalika Mwale
14. Eng. Ellie Muchelenje
15. Eng. Ellie Sampa
16. Eng. Evans Silavwe
17. Eng. Evaristo Chola Simusokwe
18. Eng. Freelance Bwalya
19. Eng. George Munankombwe
20. Eng. Hubert Jilly Chiyombwe
21. Eng. Hyden Banda
22. Eng. Innocent Mukupa Mandona
23. Eng. James Mahere
24. Eng. Jason Mwanza
25. Eng. John Mumba Chirwa
26. Eng. Joseph Kombe Changala
27. Eng. Kelvis G C Kasonkomona
28. Eng. Kennedy Bwalya Kabwe
29. Eng. Kennedy Mayumbelo
30. Eng. Kennedy Musonda
31. Eng. Leader Hakaaba Sokesi
32. Eng. Lloyd Matabishi
33. Eng. Maliti Solochi
34. Eng. Mathew Mkandawire
35. Eng. Marijani Lungu
36. Eng. Moses Pascal Mbuta
37. Eng. Patrick Mubanga Mutimushi
38. Eng. Peter Phiri Ziyeesa
39. Eng. Rajendrakumar M Patel
40. Eng. Samson Maluza
41. Eng. Simon Shangwa Muwowo
42. Eng. Webby Makoloni
43. Eng. Wilson Shane



From Left to Right Hon. Eng Charles Milupi, Hon. Eng. Collins Nzovu and Lt. Gen. Eng. Maliti Solochi



Fellows reciting the credo



Fellows reciting the credo

BANKS PLAY AN INDISPENSABLE ROLE IN DEVELOPMENT OF THE COUNTRY - MUTUKWA

By Cynthia Ngwengwe

Investrust Bank Plc Director for Corporate and Investment Banking Mr. Richard Mutukwa says the bank is looking at establishing a relationship with the Engineering Institution of Zambia (EIZ) which will see specially designed products for the Institution with beneficial features and pricing.

Mr. Mutukwa said this when he made a presentation during the EIZ annual Symposium held at Avani Victoria Falls Resort in Livingstone.

He said banks play an indispensable role in the overall development of a country, making them strategic partners in engineering for a changing world.

“Engineering for a changing world will entail environmentally sustainable engineering solutions with the renewed focus by the New Dawn administration on the growing economy, thus creation of the Ministry of Green Economy and Environment. We see financial solutions focused on green energy,” he said.

Mr. Mutukwa said the anticipated engineering projects for financing include retail solar energy penetration, leasing, recycling e.g. small scale loans under SME and charging points for electric vehicles –leasing for young engineers.

He said Investrust Bank has a treasury and structured finance teams to help clients exploit opportunities in areas of green bonds.

He further said the bank has had a good relationship with multilateral banks such as African Development Bank, Norsad, Enterprise Development Fund (World Bank) and Afrexim Bank.

He went on to say that Investrust Bank's major strengths lie in its ability to provide quick turnaround time owing to a localised decision making process.

He said the bank has the local knowledge and plan for anticipated change as the case of public private partnership and green energy.

“The bank has a broad mix of appropriately packaged products and services. At Investrust, we know that no one product suits all customers. Therefore, as you sample our products, know that we have a motto; ‘If you do not like it, tell us, we change it specifically for you’,” he said.

ENGINEERING REQUIRES SHIFT FROM TRADITIONAL PROBLEM SOLVING TO INNOVATIVE SOLUTIONS

By Cynthia Ngwengwe



Eng. Alpha Mwale

Copperbelt Energy Corporation (CEC) Senior Manager – Business Development Zambia and Democratic Republic of Congo Eng. Alpha Mwale has said today's global knowledge economy is

driven by historic developments such as adoption of open technical standards that facilitate the production, distribution and management of new and better products and services from anywhere and to anywhere.

Speaking during the Engineering Institution of Zambia (EIZ) Annual Symposium Eng. Mwale said the greatest challenge of the 21st century is global sustainability.

“Engineering research has over the years resulted in the creation of technologies that have increased life expectancy, driven economic growth, and improved the human standards of living, but this has had consequences on the environment, threatening the very existence of life on planet earth,” he said.

He said changing the world for the better requires changing the engineering practice that brought us the very industrialisation and the technology that has improved the living standards.

Eng. Mwale said the engineering fraternity is challenged to continue driving economic growth but at the same time decarbonise the world to make it a more habitable place in humanity.

He said sustainable engineering that is changing the world is now being driven by the shift from a fossil fuel driven world economy to clean sustainable energy sources.

He said a shift to renewable energy and green business ecosystems as sustainability of business is being measured from the perspective of a sustainable environment and positive social impact rather than just the bottom line.

“CEC is adapting to the changing world through pioneering innovative engineering in Zambia, leading large-scale national level renewable energy penetration and commissioning the first grid-tied solar PV plant,” he said.

Eng. Mwale said there is need for commitment of significant resources to the transformation of the industry to tomorrow's world and fully support the wider net zero ambitions.

He said that recognising that today's engineering practice requires a shift from traditional problem solving and design skills

towards more innovative solutions imbedded in an array of environmental, social, cultural and ethical issues.

Eng. Mwale also said that Zambia's power generation is dominated by hydro for up to 85% presenting a national risk in time of droughts.

He said over the years the country has experienced fuel price volatilities as a result of crude oil economics on the international market.

“As a way of complementing government and other players’ efforts in diversifying energy sources, CEC has embarked on a number of projects such as production of biodiesel from a plant with a capacity to produce 900,000 litres of biodiesel per annum from crude vegetable oil, expansion of the existing 1MW solar plant PV to 34MW, development of 40MW Garneton Solar Plants under GETFIT Solar (Z) programming co-development of hybrid UPEPO and development of 2X20 MW hydro power plants under the GETFIT small hydro Programme,” he said.

He said these projects are providing opportunities for practical learning for employees and university students throughout the project

cycle and thereby enhancing the organisational capability and empowering employees to the manage evolving power industry and be part of the national pool of skilled personnel.

Eng. Mwale said pursuant to the worldwide shift from manufacturing to a knowledge service economy, organisations will depend on sophisticated logistics, global supply chains and an integrated global economy.

He said the winners and engineers to change the world are the innovators, those with the capacity to invent, manage and leverage intellectual capital.

“CEC’s biggest capital is human resource dominated by engineers. In this vein, the company will continue to invest significantly in human resource, particularly in non-core engineering areas such as multicultural work exposure, effective communication, business acumen, disruptive technologies and innovation to supplement the engineering backgrounds and adopt the 21st century requirements and global engineering demands,” he said.

He said CEC will continue to support policy frameworks aimed at encouraging competition and innovation in the industry.

GOVERNMENT REMAINS COMMITTED TO ROAD INFRASTRUCTURE DEVELOPMENT

By Cynthia Ngwengwe

Road Development Agency (RDA) Director-General and Chief Executive Officer Eng. George Manyele has said the government of the Republic of Zambia remains committed to road infrastructure development that will in turn spur social and economic development not only in Zambia but Africa as a whole.

Eng. Manyele said this when he made a presentation on the engineering Inter-Africa trade and the sustainable development goal during the EIZ Annual Symposium held at the Avani Victoria Falls Resort in Livingstone.

He said government's commitment will keep transport corridors in a good condition, an aspect which

remains as a prerequisite in promoting and increasing regional trade.

He said Zambia Development Agency is empowered through the public roads amendment Act of 2006 and its sub-regulation, the statutory instrument No. 76 of 2015 to regulate the maximum permissible weights on Zambian roads.



Eng. George Manyele

He said the regulation is conducted in order to protect public roads from damage caused by overloaded vehicles and reduce the risks of road traffic accidents on public roads caused by over-dimensioned vehicles.

Eng. Manyele said RDA in consultation with other road sector stakeholders developed the Road Sector Investment Programme III (RoadSIP III) which is a ten (10) year investment programme which was developed with support from the African Development Bank (AfDB).

“The objective of the 10-year plan is to bring the Core Road Network to maintainable standards by considering bankable resource mobilisation for investment which includes freeing up funding to address priority road sector needs,” he said.

He said the ten-year plan is estimated to be at a total cost of US\$4.3 billion with projected road user charges at US\$2.8 billion, leaving financing gap of US\$1.5 billion which is envisaged to be bridged with assistance from cooperating partners.

He said expected outputs of RoadSIP III – 1 will be maintenance and improvement of 26,000km of annual core road routine maintenance, 20,000 km of core road periodic maintenance, 4,800 km of core road improvements, 10,305 km of non-core roads kept passable; and 466 bridges, 27 pontoons and 3,393 culverts maintained in core road network.

He said the RoadSIP III Programme will also help in poverty reduction through increase in work for domestic contracts, employment of generation in rural areas, and improved road conditions from trunk roads down to primary feeder roads and non-core roads.

Eng. Manyele said notable rehabilitation projects include rehabilitation of the Mpika to Chinsali Road, Chinsali to Nakonde Road, and Kafue to Mazabuka Road.

“Government signed a loan and an agreement with the European Investment Bank (EIB) amounting to 110 million pounds and 72.75 million pounds respectively towards the rehabilitation of 164.6 km of Mpika to Chinsali road, while a loan agreement with the African Development Bank and African Growing Together Fund of US\$193

million and US\$50 million with GRZ counterpart funding of US\$12.8 million which is anticipated to be completed by June 2023, while Kafue-Mazabuka works are substantially complete,” he said.

He further said under the bridge projects the Institution constructed the Kazungula Bridge at a total cost of US\$174.18 million and was commissioned on May 10, 2021 and is now operational.

He said the construction of the bridge also included the construction of one stop boarder post facilities on both the Botswana and Zambian sides and works are now complete and the facilities are operational.

Eng. Manyele said Zambia's Road Infrastructure mission is to provide sustainable road infrastructure for connectivity and accessibility to spur social-economic growth.

He said the government is vigorously promoting the participation of the private sector in providing public services such as road infrastructure among others and is looking forward to implementing various road and rail infrastructure which requires considerable amount of investment.

MEET THE EIZ'S FEMALE VICE PRESIDENTS

By Cynthia Ngwengwe



Eng. Diana Kangwa

The Engineering Institution of Zambia (EIZ) during its Annual General Meeting in Livingstone held on 23rd April 2022 ushered into office the 61st Engineering Council after elections were conducted.

Amongst those elected, the Institution saw the election of two female engineering professionals elected as Vice President Finance and Administration and Vice President Membership and Continuous Professional Development.

Making the two become the second female Vice Presidents to be elected to these positions after Eng. Charity Chola and Eng. Monica Milupi who were Vice President Policy, Public Relations and National Development and Vice President Membership and Continuous Professional Development, respectively.

Eng. Sharon Mabengwa Musonda, a fellow of the Engineering Institution of Zambia, was elected the Vice President responsible for Membership and Continuous Professional Development (MCPD).

Eng. Musonda is an Environmental and Chemical engineering expert who has successfully transitioned from hands-on roles at Technologist

category working her way into an accomplished entrepreneur, passionate about environmental conservation and empowering local girls and women in providing domesticated solutions to environmental challenges and threats.

Eng. Musonda is currently in her final year pursuing an MSc in Environmental Management at the University of Lusaka. She holds a B.Eng in Environmental Engineering from the Copperbelt University (CBU). She is an Isotope Fellow of the Waterloo University, Canada and founder of Dichem Consultancy and Engineering Services, which has handled multimillion dollar projects



Eng. Sharon Musonda

across sectors both in private and public sectors.

She brings to Council a rejuvenated passion for promoting private practice and startups of small and medium enterprises with increased participation of all engineering practitioners from baseline artisanal Craftsperson, technicians to technologists and professional engineers. Sharon emphasises practicality and implementation of ideas for the general benefit across the cross spectrum of the membership.

Eng. Diana Kangwa, also a fellow of the engineering Institution of Zambia, was elected as Vice President Finance and Administration of the 61st Engineering Council.

Eng. Kangwa holds a Bachelor's Degree in Electronics & Telecommunications Engineering from the University of Zambia, a Master's Degree in Communication & Information Systems from Huazhong University of Science and Technology (HUST) in China and a Master's Degree in Business Administration (MBA) from the Copperbelt University. She completed her Doctorate in Business Administration in December 2021 at the Binary University of Management Entrepreneurship of Malaysia and will be conferred later this year.

Being a seasoned expert with more than 16 years' industry experience, she served as Chief Operating Officer of Zambia National Commercial Bank PLC for five years until she left in August 2021. She ensured strategic vision translated into profitable operations by improving operational quality, cost and overall efficiency of the bank while leveraging on technology and innovation to drive positive change across the bank.

In her role as Chief Operating Officer of Zambia National Commercial Bank PLC, Eng. Kangwa kept a high-level strategy front-and-center while

remaining a resourceful problem solver who was comfortable digging in to identify the root causes and found creative ways to resolve issues.

Eng. Kangwa would like to be remembered as one that has faith in people's potential, the enduring spirit of team work and who took time to encourage her colleagues in the bank to soar beyond their comfort zone and put her soul into anything that she committed to by striving to represent her Maker in all that her hands found to do.

Eng. Kangwa had unshakeable faith

in people's potential and placed a high premium on team work which she believes is the bedrock for turning any strategy into operational and financial success. She has been instrumental in creating a high performance and ethical culture through disciplined execution, active collaboration, process streamlining, automation and innovation in turn helping to drive a lean, agile and cost efficient operating model for the bank during her four-year stint with Zanaco.

She encourages the girl child never to settle for mediocrity and have big scary goals.

ENGINEERING A PRIMARY NATIONAL INCOME GENERATOR - CHIRWA

By Abigail Hampande



Eng. Prof. Clive Chirwa

Eng. Prof. E. Clive Chirwa has said engineers are professionals who invent, design gadgets and machines, research, and develop materials, use scientific principles to develop technologies for human kind, and build complex structures and systems.

He was speaking when he made a presentation during the young engineers' forum held in Livingstone on 20 April 2022.

Eng. Prof. Chirwa said problems cannot be solved by Science alone but by using engineering understanding and artistic knowledge in order to create simplification.

He said the current engineering education in Zambia is the colonial designed education system that does not allow innovation and critical thinking for National development; therefore, the need to revise it in order to solve the 21st Century problems that the country is facing.

“We have capitalised in very costly education but we get less knowledge because we have never capitalised on critical thinking and innovation,” he added.

He said investment on education will help the nation to produce better engineers taught based on new curriculum that focus on inventions, design, production and ready to solve 21st Century problems.

“Not only will we become better engineers focused on inventions, design and thinking outside the box, but we will save Government money and students will reduce academic loans” he added.

He said an engineer is a primary national income generator considering that the second income generator is Mining and Processing, Agriculture, Transport, Energy, Environment, Building and Construction while the secondary national income generators will utilise some of the money to process and create further money by exporting or by utilising the transport system and building energy and building construction.

Eng. Prof. Chirwa said young engineers should take up engineering positions if we are to see our country develop to greater heights.

“Fifteen percent of engineering graduates are employed by companies that need functional engineers, 20 percent by parastatals, 10 percent by private companies, 5 percent will go for postgraduate studies and enter academia while 60 percent will be unemployed,” he said.



“As young engineers, you have to learn to develop and become skilled in computational logic, that includes manipulation of numbers from 0 and 1 only including dimensional analysis and mathematics which is a key tool in engineering and applications,” he said.

Eng. Beene said engineering is making strides in the changing world through the application of scientific principles and mathematics to harness nature and create things that address the needs of the human race through Energy, shelter mobility, communications medicines for wellness, creativity, comfort and beauty.

Eng. Godwin Beene

He said it is not the end of the world for the 60 percent of graduates that are not employed but a great opportunity for them to shine and become an employer through engineering excellency and entrepreneurship.

“Great opportunity for you exists to think outside the box and build your own career using the knowledge gained from the student days to real life situation,” he added.

He said production facility is not needed in modern times, just design and let the supply chain work for you and market using either your own people or people in different specialised fields to work for you.

He added that tomorrow's world is about knowledge and implementation, to calculate risks and to make sure products can replace the current available goods on the market.

Eng. Prof. Chirwa said the necessary tools for the 21st Century engineer in Zambia is to be loyal to the engineering profession, be self-disciplined and avoid enrichment through primitive means, be a professional student, get ready to solve complex, pioneering problems, use your brains and not your heart.

“Don't be a politician or a diplomat, criticise when wrong and praise when right, tend to mostly work in a team and not alone, learn to ask when you do not know, mistakes are very costly,” he said.

He said engineers are expected to solve current problems that the country is facing in order for Zambia to prosper



Pupils who attended the Young Engineers' Forum

because the country can no longer wait for outsiders to solve its problems in a multi polar world.

He also encouraged the young engineers to read the nation's plan and select from it what can be done to contribute to make the country prosperous and rich considering that engineers are breadwinners for the country.

At the same event Eng. Dr. Godwin Beene said engineering is a pillar that is responsible for the human race's wellness and sustainability in that it involves both matter and materials.

He said engineering professionals have been given an opportunity to replenish the earth, refill the matter and manipulate it by having an idea of wellness using the tools, which are energy, elements and materials.

He said a fundamental principal of classical physics is that matter cannot be created or destroyed in an isolated system at play and, therefore, matter and energy will be available for manipulation to meet the needs of the human race.

“Our role is to think of what we want to become in the next 5,10,15,20 and 30 years for you are professional engineers, what possibilities you envision and what answers do you have to pressing demands today,” he said.

He said people in school should have a view of the world, select what they think is the need, pick a choice and act to create the change.

Meanwhile North-Western Water Managing Director Eng. Happy Musumali encouraged young engineers to be strategic in writing their Curriculum Vitae (CV).

He said simple changes should be made in order to help make sure the CV stands out from the rest. These include career objective, unrelated awards, hobbies and interest, too much formatting, task list, and the basics.

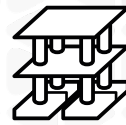
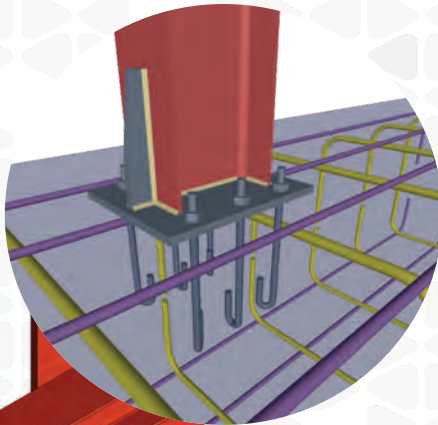
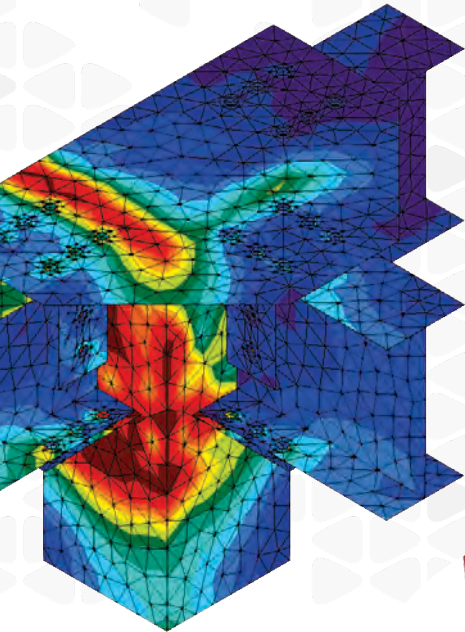
He advised the young people to keep the CV simple and short, list the accomplishments for each role, and list the skills that will stand out, professional summary, skills achievements, attributes, competencies and qualifications.

Furthermore, he said young engineers should tailor their CV depending on the position they are applying for, dress smartly for the interview and practice adequately before the interview.

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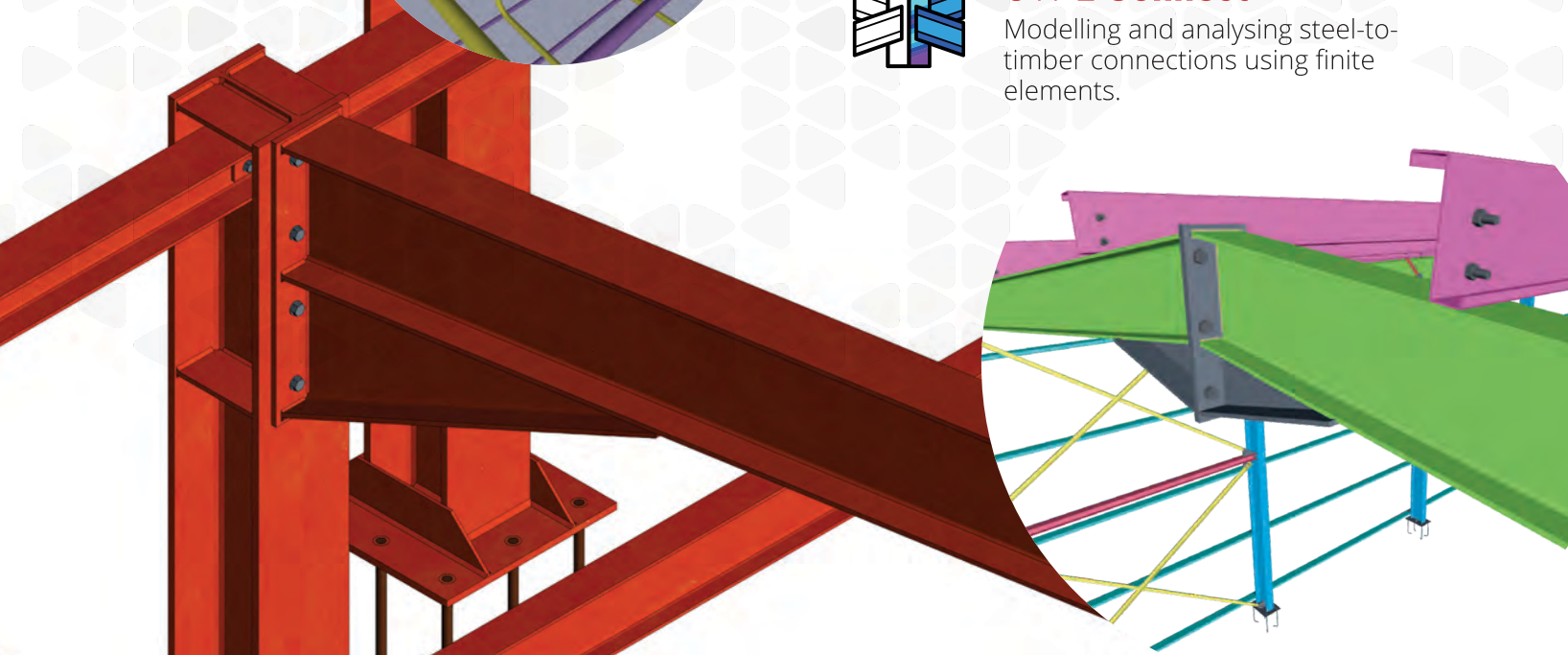
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THE ENGINEERING INSTITUTION OF ZAMBIA

FRAUD ALERT: EIZ REGISTRATION SERVICES

The Engineering Institution of Zambia is a statutory body enacted by the EIZ Act No 17 of 2010.

The Engineering Council and Management have noted an increase in “**EIZ AGENCY SERVICES**”. The EIZ would like to inform the membership, stakeholders and the general public that there are **NO AGENTS** appointed/contracted to provide services on behalf of the Institution.

All services including membership/practice registration & renewals for both engineering organizations and individuals are through the EIZ Secretariat. EIZ or its employees shall not be held liable for any loss or damage arising from transactions conducted by persons or institutions claiming to be representatives of EIZ.

Further it is prohibited to use the EIZ Logo minus the authorization of the Institution on all activities, adverts and media.

Issued by Communications Unit



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- **Benevolent Fund:** This is a fund set up by EIZ and registered under the Registrar of Societies for the purpose of providing support and assistance to members of EIZ who are in need.
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- **Move with Technology:** EIZ organizes and facilitates for Skills Competitions, Technical Tours and Workshops for its members
- **Shares:** Members have access to ownership of their institution through buying in the EIZ Properties PLC.
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