

Welcoming Statement by the President, IEK



It is my great pleasure to welcome you all to the 27th **Institution of Engineers of Kenya (IEK) International Conference** being physically held here in Mombasa and also a warm welcome to those that are virtually attending. Karibuni sana.

The annual conference enables us to take a break from our busy schedule, rest, and network as we share and catch up with the latest technological advancement in our various engineering fields.

To achieve this, we organize for presentations from top-notch international experts in various engineering disciplines who present papers that challenge us to change the way we have been doing things. They also urge us to adopt new ideas of which I implore you to take advantage of as you relax and learn.

It has been a challenging period as Covid-19 has stretched every one of us to the limit. Some have lost their source of livelihood while others have not been able to keep their offices open.

The engineering fraternity, its members and I wish to send messages of condolences and encouragement to the families and friends of those who have been

affected by Covid-19. We pray that God gives you strength at this trying time. May the souls of your loved ones rest in eternal peace.

The Institution of Engineers of Kenya has kept in constant communication with our members through the various virtual avenues that are at our disposal including holding webinars and now this conference. This has gone along way in sustaining our continuous professional development during this challenging period of COVID-19 pandemic. The Council is doing its best to ensure continuity of delivery of services to our members.

To our members who have faced various challenges, I would like to urge you not to lose hope. The best leader in this world is the one who has made the best out of a difficult environment. Covid-19 is temporal. Let us stay focused and not lose hope.

With the projected possible finding of the Covid-19 vaccine, we are looking forward to a very successful new year where we shall achieve accelerated economic growth and recover the lost opportunities.

To our members at this conference, we have put in place all necessary measures, including the Ministry of Health guidelines to ensure your safety but I still request you to look after yourself and your neighbour. Ensure that you stay safe. Wash your hands often, observe social distance, keep your masks properly on and sanitize.

To all the others joining us virtually, we are happy that you have made time to attend the conference but please take time off your busy schedule to also rest and try to follow the conference away from your offices. This will ensure that you concentrate, and you do not get sidelined with office activities.

The Council of the Institution of Engineers of Kenya is working very hard to push for the space of an engineer in our society. It is only by allowing an engineer to take charge of the various development projects that this country will move forward at an accelerated rate towards achievement of Vision 2030 and the Big 4 agenda. An engineer will ensure that feasibility studies and proper designs are carried out before contractors are appointed to start the construction works. An engineer will also supervise the works to ensure compliance with specifications and follow up the construction program. Value for money will be achieved and resources used for the intended purpose.

We are lobbying the national and county governments to ensure that all engineering positions are occupied by professional engineers. Engineers should also be allowed space and time to give guidance and lead policy formation in state agencies by being appointed to boards. If this is done, Kenya will move forward at an accelerated pace.

I would like to thank all of you for the support that you continue to give to the Council and to the institution by participating in the various activities that we have organized and also turning up and being able to assist in the various committees that are working and keeping our members engaged.

I wish you all an incredibly happy stay in Mombasa. Take time to enjoy the conference but please remember to keep safe.

God Bless you.

Eng. Nathaniel Matalanga, PE, FIEK
PRESIDENT
THE INSTITUTION OF ENGINEERS
OF KENYA

Message from Engineers Board of Kenya



“The COVID 19 pandemic has offered a challenge and opportunity to the Board with respect to re-examining and re-affirming the place of research, development and innovation, to the challenges facing humanity and therefore a special focus and attention is being given to develop professionals in the academia and enhancement of academia - industry linkages”.

I am delighted to join you at the 27th IEK International Conference. The annual International conference provides an opportunity for us as engineers to share experiences and knowledge, and celebrate achievements as we have accomplished as we reflect on the lessons we have learnt from them.

The conference therefore provides the forum to highlight the engineering challenges faced by our society and showcase innovative solutions developed by engineers and associated professionals.

It also provides a conducive environment to dialogue on current trends in emerging issues, how we are preparing ourselves to embrace in our daily life and finally gives an opportunity to refocus our strategies on how to better life for all going into the future.

I wish therefore to congratulate Institution of Engineers of Kenya (IEK) for consistently organizing the conference over the years.

This year's conference is unique with the challenges of serious life-threatening COVID-19 Pandemic and the Engineers Board of Kenya is particularly proud to have partnered with you in ensuring the conference theme is achieved.

Implementation of the Engineers Act

The Engineers Board has continued with the implementation of its mandate under the Engineers Act 2011 and as further facilitated under the Engineers Rules 2019. The Board is therefore mandated to effectively regulate the entire engineering value chain comprising of engineering education, engineering training, and engineering practice.

To achieve these the Board is carrying out several programs aimed at strengthening the engineering profession. For a start, we are putting special emphasis on our most important asset and our core mandate; registration of engineers. To achieve this, we have recognized the unexplored latent potential in our graduate engineer who account for 86% of the Board's register.

The Board has therefore prioritized the need of rectifying this disproportionate representation by putting in place mechanisms for ensuring a smooth and effective transition from graduate engineer to professional engineer.

Operating Environment due to COVID 19

The COVID 19 pandemic has offered a challenge and opportunity to the Board with respect to reexamining and reaffirming the place of research, development and innovation, to the challenges facing humanity and therefore a special focus and attention is being given to develop professionals in the academia and enhancement of academia - industry linkages. We have indeed had very stimulating engagements with our Universities on strategies to develop professional career growth for our teaching fraternity as well as with the Commission of University Education on promotion of quality engineering education.

The COVID-19 pandemic has also accelerated the digital transformation in all our spheres of life. The Board has therefore reviewed its modes of engagement and delivery of programs from mainly in person to virtual. This has been particularly helpful under the continuing professional development programs.

Conclusion

I wish to assure all our stakeholders that in order to accomplish the array of programs for effective service delivery, the Board is enhancing the capacity of its secretariat. The Board is indeed currently implementing progressive Human Resource Instruments that were developed to provide for the requisite human resource capacity.

I also regret to inform you that the fraternity has unfortunately had some of its registered members affected by the COVID-19 Pandemic and some have even paid the ultimate price.

We wish to celebrate the contribution towards engineering services offered by members that have lost life caused by the pandemic and through other causes and commit ourselves to serve humanity with diligence and leave the world a better place than we found it.

I wish to extend my sincere appreciation to the organizers of the Conference and our partners who have supported us in one way or another.

I particularly wish to thank the Government of Kenya and Development partners who support engineering practice both directly and indirectly.

I wish you all a very fruitful conference.

Thank You.

Eng. Erastus Mwongera
Chairman EBK.

Statement by the Honorary Secretary, IEK



I am pleased to welcome you to the 27th Edition of the Institution of Engineers of Kenya (IEK) Conference 2020. I am happy we have managed to meet in person and virtually despite the challenges we are facing as a country and the Institution in recent times. I wish to assure those present here that we have taken steps to ensure you are all safe during this prestigious event.

The Conference comes amidst the COVID-19 global pandemic has significantly changed the lives of many people and operations of organizations worldwide. The infrastructure, manufacturing and technology has been hit badly. Many sectors are spending a lot of time figuring out how the world will be after this virus. For the engineering sector, equally, the change has been sudden and dramatic. Production, food security and development sectors are largely exposed to the negative effects of the corona virus outbreak. It has become one of the largest public health epidemics ever, and caused an inconceivable economic crisis, with a halt of production and near collapse in consumption.

We appreciate the dedication shown by the members in support of the profession and the Institution. It has been a tough year for all, with the loss of lives, loss of sources of livelihood and the emotional distress the virus has caused to the populace. Yet the desire to keep resilient and fight the pandemic remains alive in us. Rightly so, as the engineering sector plays a pivotal role in food production, manufacturing, housing, energy, and infrastructure development.

This period will fundamentally impact how we do business in future. Moving on, we recognize the bigger role we must play in enhanced food production, technology advancement, energy production and provision of primary links for the populace as we advance. It is my hope that during this conference we will delve deeper into the challenges we face both as a profession and the society and come up with robust solutions that build resilience and self-reliance.

As the Institution, we remain invested in the welfare of our members. We commit to implement the resolutions agreed upon here. We will soon launch a conference magazine edition to document the conference engagements and a journal to give a platform to members to publish their innovations and new knowledge in their various fields of expertise.

I hope this conference enhances your social capital, I hope you gain new knowledge and above all, it reinvokes the fire in us to do what we do best as engineers- build the nation.

I wish you an enjoyable stay and a memorable festive season ahead.

Eng. Margaret N. Ogai, CE, FIEK
Honorary Secretary.

Forward from Conference Chair



“The theme of the conference is “Engineering a Post-COVID-19 Future: Implementing sustainable regional and local development agendas taking into account global best practices. The conference will provide a platform for sharing and exchanging best practices in the various engineering disciplines in response to pandemics and the contribution of the engineering fraternity.”

Dear Delegates,

It gives me great pleasure to welcome you all to this auspicious 27th edition of the Institution of Engineers of Kenya International Conference in collaboration with the Engineers Board of Kenya. Indeed the global COVID-19 pandemic has changed the world and the way of doing business.

The theme of the conference is **“Engineering a Post-COVID-19 Future: Implementing sustainable regional and local development agendas taking into account global best practices**. The conference will provide a platform for sharing and exchanging best practices in the various engineering disciplines in response to pandemics and the contribution of the engineering fraternity.

The conference sub themes has been classified into seven areas which will cover Engineering the Sustainable Development Goals; Big Four Agenda and Vision 2030; Smart Cities and Intelligent Infrastructure; Development of National, County, and Regional Value Chains; 4th Industrial Revolution and Industry; Academia, Research, and Development and Climate Change Resilience.

In organizing the conference, the IEK council through the Conference Committee took into consideration the uncertain times and made the necessary arrangements to accommodate all your conference needs. The choice of the conference venue will ensure that the hybrid model of conference will be achieved as well as the observation and adherence to Governments COVID -19 protocols and guidelines.

In conclusion, I take into account that the point of conferences is not just to look at the talks and power point slides, it’s to meet people and to make new connections but in this season we ought to embrace the new normal and embrace the opportunity presented by the pandemic in virtual space.

I also take this opportunity to sincerely thank all the distinguished delegates, the conference sponsors, the key note speakers, the paper presenters and exhibitors for your continual support and finding time to attend the IEK international conference.

Looking forward for a fruitful deliberations. Stay safe, Stay healthy fellow engineers and esteemed delegates.

God Bless Kenya, God Bless Engineering Fraternity.

Eng. Collins Gordon Juma, CE, FIEK, MBS
CONFERENCE COMMITTEE CHAIRMAN

Message from the Chief Executive Officer, IEK



I welcome you all to this 27th IEK conference.

This year has presented numerous unique challenges to the Engineering fraternity and the world as a whole.

As a result, everyday activities like reporting to work and meeting people for business or even leisure have seriously been interrupted and it's not been business as usual. It is therefore important to note that organizing such a conference was going to present such an insurmountable challenge within the prevailing circumstance.

However, with the ingenious stewardship and temerity of the IEK Council, this has been made possible. I cannot forget to mention our partners; World Federation of Engineering Organizations (WFEO), Federation of African Engineering Organizations (FAEO), East African Federation of Engineering Organizations (EAFEO) and Engineers Board of Kenya (EBK), for remaining steadfast and proactive throughout the process. Thank you for having faith in us to deliver on this conference.

To all our esteemed sponsors; EPRA, NUPEA, KENHA, KURA, KRB, NCA, NHC, Stockholm Environmental Institute, we extend our profound gratitude in you all, making this conference a success!

Eng. Linda Otieno, PE, MIEK,
Chief Executive Officer,
The Institution of Engineers of Kenya