

The role of Universities in Harnessing Scientific Research, Innovation and Technology for Sustainable Development.

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I'm greatly honoured to preside over this important event in this university - the first Machakos University International Conference. I wish to congratulate you at the very outset for organizing this event, as it accomplishes one of the key tenets of a university, which is to facilitate a platform for sharing research findings and engendering discourse among scholars. The Theme of the conference: "*Harnessing scientific research, innovation and technology for sustainable development*", could not have been more fitting. It aptly captures the key issues of research, innovation and technology, which drive development in the world today and is in line with the African Union (AU) Commission for Science, Technology and Innovation Strategy for Africa (STISA) framework for socio-economic transformation of the continent. This will reposition the continent as a strategic player in the global economy through improved education and application of science and technology in sustainable development.

The Theme also resonates quite well with what the Government of Kenya has articulated in Vision 2030 and more recently amplified as the 'Big Four' Agenda. These include: Food Security, Health, and Manufacturing and affordable Housing. This is what the Government has pronounced as the focus for the next five years. It is expected that all the sectors of the Government as well the private sector, will align their activities to these priority areas. Commission for University Education (CUE), besides assuring quality in university education, is charged with the task of promoting research and innovation in the university sector. It is in that regard that I'm glad to have been invited to speak and participate in this conference.

I'm also pleased that Machakos University organized this international conference, which is expected to bring together over 500 local and international delegates. Renowned scholars, researchers, industrialists, technocrats and professionals will converge here for three days to engage and reflect on research outputs, innovation and technology with a view to coming up with recommendations and action plans that would make Kenya globally competitive. Through paper presentations, parallel and plenary session discussions around the thematic areas identified; knowledge and useful insights will be shared among the participants. From discussions led by researchers, scholars and professionals from various educational fields, the knowledge gap will be bridged and further research may be provoked. In addition, innovative strategies will emerge and advisories to the Government coming out thereof.

Clearly, the contribution that Machakos International Conference is making to champion the Kenya Government's agenda and promote research and innovation in higher education sector is quite evident. This conference is playing a strategic role in guiding and fostering ideas, which are needed to improve scientific research, innovation and technology in the university sector. As noted earlier, the sub-themes cover critical areas considered as a priority nationally. I'm confident that

these thematic areas will generate intense discussions which will further be distilled to policy and action plans for the National as well as County Governments.

In agriculture for instance, I expect informed discourse on research strategies needed to combat threats to food security, such as from the ‘*fall army worm*’ that has wreaked havoc to maize crop in many parts of the country. *What are the universities where those disciplines are taught, doing about it? Why have farmers been left to suffer yet research bodies such as the “Kenya Agricultural and Livestock Research Organization (KALRO) are in place?”* There is need for the Universities, Research Institutes and the respective line Ministries to synergize and provide solutions to such challenges.

Kenya Forest Research Institute, now called Kenya Forest Service (KFS), was set up to manage forest resources so that the ratio of land under forest cover is maintained within the international requirement of 10%. But it has largely been passive as the forest cover is depleted. As a consequence, rivers that were once full and flowing throughout the year are drying up and water has become a scarce commodity. How are universities responding to these threats? Kenya has also witnessed a spectre of flooding and the destruction it leaves in its wake whenever heavy rains fall. Alongside the Disaster Management body, one would expect that researchers in the universities would lead in coming up with ways of mitigating such calamities. But where are they?

These case studies show a glaring disconnect between universities and research bodies as well as the government. It exposes our soft underbelly and leaves us susceptible to risks, which could easily be mitigated. In the words of the late renowned scholar, Prof. Calestous Juma:

“Africa’s most significant challenge is to invest in capacity building through enhanced education in science, technology, engineering, and mathematics . . . Very few African universities have updated curricula or use teaching methods that promote innovation. . . . most universities still teach and confer degrees, whereas much of the world is experimenting with new university models that focus on transforming the economies of the regions in which they are located” (CUE, 1st Biennial Conference Proceedings, p.3,2018).

This is a wakeup call to the universities in Kenya and more particularly, the delegates attending this conference. The need to connect the functions of universities with research institutes, which have typically been kept separate, is long overdue. The current approach is dysfunctional because most universities in Kenya use archaic teaching methods which does not incorporate new research findings, consequently producing graduates with *outdated worldviews and skill sets that are not suited to contemporary needs (ibid)*. Research institutes lack the means to disseminate findings to the public through practical business or undertaking community outreach without students. These functions need to be pursued in an integrated way under one institutional structure. I wish to stress the role of universities as drivers of economic transformation and focusing on innovation.

I want to challenge you to start thinking of Innovation universities in diverse fields such as agriculture, health, industry, services, and environment to advance sustainable development and inclusive growth. Innovative approaches to climate change and measures of mitigating the phenomenon should be part of the daily conversation in the universities.

Transformative development through language, culture diversity and community engagement is what Kenya requires urgently to address the polarizing politics and other ethnic nuances currently obtaining. To strengthen research in existing universities there is need to link selected research institutes with universities. Other opportunities for creating linkages with universities lie in public corporations and large infrastructure projects like the SGR, National Highways Construction, real estate development, to mention but a few.

Research institutes provide a strong foundation upon which to strengthen universities by combining research, teaching, community service, and commercialization. Creative approaches are needed to add graduate teaching functions to the institutes. There are some research institutes like KEMRI, which work with international partners using cutting edge technology, especially in health to come up new products for treating emerging diseases. They could be supported into frontier fields such as synthetic biology for health, industry, agriculture, and environmental conservation.

Policymakers should strengthen the educational, commercialization, and extension functions of the research institutes. Clustering these functions would result in dedicated research universities whose curriculum would be modeled along full value chains of specific commodities. For example, innovation universities located in proximity to sugar, fruit or cereal production sites should study the entire value chain of these industries. Such dedicated universities would help to connect higher education to the productive sector through continuous interaction with businesses, Government, and civil society organizations.

Private and public enterprises can also help expand higher technical training through in-house programs. Firms can help to consolidate training activities across industries to create dedicated training and research programs, improving upon the current emphasis on firm-specific training. With proper incentives, such activities could contribute to the firms as well as to the wider economy. Such training facilities could also be embedded in existing universities. For example, Safaricom is supporting an academy at Strathmore University in Kenya that offers a Master of Science degree in mobile telecommunications and innovation; Manu Chandaria Foundation has set up the Business Incubation Hub in Kenyatta University; while IBM has established research and training centers in Catholic and Kabarak Universities. Other universities and firms should follow this path.

In conclusion, I would like to remind you that this conference will no doubt provide you with an opportunity to network and build lasting relationships. It should not be an end in itself, but the beginning of a long scholarly engagement. From here, I expect that you will endeavor to establish collaborations, partnerships and exchange programmes which will promote internalization and cross-border intellectual exchanges.

I urge you to desist from the temptation of reducing conferences to venues where participants simply present papers for purposes of fulfilling requirements for promotion; rather than looking at the bigger picture of academic engagement which leads to establishment of projects or partnerships that benefit the wider community and the world at large. The world is moving fast on discoveries and innovations and we must learn how to move with it.

Let this conference provide you with a platform for sharing research findings, verifying innovative ideas or products as well as testing the tenacity of emerging issues. The progress of research and

results of projects being undertaken are welcomed in such conferences. The products from research or innovations are also valued in such fora.

Allow me to say this: concept papers based on theory of library search, though allowed, are misfits in international conferences. They should be minimal. We want practical solutions to the myriad of problems facing humanity. I hope that the scholarly presentations, which will be made, will not end here. Instead, they should all be reviewed with the intention of publishing a book of proceedings as well as up - scaling some of them to the standard of articles in refereed Journals. Similarly, a report to the government and development partners should be prepared, highlighting the conclusions and the key recommendations made. It should also outline what could be implemented in the short and long run without large capital outlay or overhead costs.

A post conference review would be useful to point out the strengths, weaknesses and areas requiring improvement. That would enable you to plan for a much bigger international conference in future. I also hope that there is a team assessing the presentations and other actors in the conference with a view to awarding prizes to those who have emerged as the best presenters in line with the theme of this conference.

With those many remarks, I once again thank you for inviting me to speak in this conference.

Thank you.

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Chairman, Commission for University Education**