

Science And Humanities: Bridging The Divide For Human Development

Keynote address presented by Prof Ekanem I. Braide
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Protocol

I consider it an honour to be invited to give a keynote address at this conference. I congratulate the Vice Chancellor and his management team for organizing the 3rd edition of the conference. It is not possible for me to be physically present at the Conference but I assure you that my keynote address will be ably presented by Prof Ann Asuquo who is representing me.

Permit me to bring you greetings from the Nigerian Academy of the Science (NAS), the foremost independent science body in Nigeria. Our Academy was founded in 1977 as a national not-for-profit organization with membership covering all fields of science including medicine and engineering. For fellowship of the Academy, the election process starts with a nomination through a rigorous peer-assessment and ends in very competitive screening resulting in election of no more than 10 scientists annually. The Nigerian Academy of Science is the national representative on such international scientific bodies as the International Science Council (ISC), the Inter-Academy Partnership (IAP), and the Network of African Science Academies (NASAC).

Our mandate is *to assist government in addressing major national problems that can be solved by application of science, technology and innovation. We do this by*

- Providing advice on specific problems of a scientific or technological nature presented to it by the government and its agencies, civil societies as well as by private organizations;
- Bringing to the attention of the government and its agencies problems of national interest that science and technology can help to solve; and
- Establishing and maintaining the highest standards of scientific endeavour and achievement in Nigeria, through the
 - publication of journals and reports
 - organization of conferences, seminars, workshops, symposia and webinars
 - recognition of outstanding contributions to science in Nigeria

- development of a working relationship with other national and international scientific bodies and academies.

Apart from our international activities, the Nigerian Academy of Science continues to partner with the federal and state governments as well as other stakeholders in addressing issues related to national socio-economic development. We have participated in the review and development of policy documents for Federal Ministry of Science and Technology and Ministry of Health.

Our Academy assisted the country in the containment of COVID-19. Fellows of NAS served on, and chaired, the independent Ministerial Advisory Committee on COVID. This committee was always present in the COVID Situation Room. Our Academy also supervised six special TETFund research grants on COVID, to ensure rapid delivery of results to inform policy. Additionally, the Academy collaborated with her counterparts in Ghana, and Senegal to exchange expert knowledge on best practices during the pandemic.

Our Academy has administered Ford Foundation grants to six States for work on gender violence. We are also part of an international team implementing a project on *addressing predatory academic practices*, aimed at ensuring that ethical academic standards are preserved. As part of the project, NAS is participating in a consensus study and recently hosted a virtual workshop to discuss the science research publishing landscape in Nigeria, including the drivers of Predatory Academic Practices (PAP) in the Nigerian context.

Our Academy has hosted a virtual meeting of all science related Societies and Associations in Nigeria with a bid to foster collaboration. We have regular meetings and interactions with the media and recently hosted a Webinar recently under the theme *Science through the Film Lens: Bridging the Divide*. This webinar was convened to explore how the science and the media industries can collaborate for more effective science communication, and for public education through entertainment

With respect to education, the Academy is currently running projects on STEAM (Science, Technology, Engineering, Arts, and Mathematics) Education in Nigeria. The STEAM project, which is being funded by JAMB, is being implemented in collaboration with JAMB, Nigerian Academy of Letters (NAL), Nigerian Young Academy (NYA), National Universities Commission (NUC), Ministry of Education, All Nigerian Congress of Principals of Secondary Schools (ANCOPSS) and Universal Basic Education (UBEC). The project aims at stimulating integrated learning of the sciences and the arts

in a way that drives innovation in the country. A fallout from this project is the production and presentation of an advisory document, on the education roadmap, to the Ministry of Education. We plan to strengthen the collaboration between NAS and NAL for the benefit of the nation.

We also facilitated the formation of The Young Academy, membership of which includes young accomplished researchers in science and humanities under the age of 40 for men and 45 for women.

Activities of the Nigerian Academy of Science confirm that we have been working hard to **bridge the divide between science and humanities** through the years. In other words, NAS has been doing exactly what the theme of this conference seeks to address!

Now to the theme of this conference.

Human Development is a summary composite measure of a country's average achievements in three basic aspects of human development: health, knowledge and standard of living. In other words, Human Development Index (HDI) is measured by status in education, life expectancy and per capita income. Countries in Europe and East Asia are ranked high while countries in Sub-Saharan Africa are ranked low in HDI rating. Switzerland ranks number 1 while Nigeria ranks number 161 out of 191 countries in the rating. Human Development is linked to general national development. Expectedly, national development is at its peak in countries with the highest HDI.

Nigeria, like many African countries with low HDI, is plagued by a number of major problems which negatively impact on sustainable socio- economic development. Most of these problems can be addressed by sufficient research. However, it is common knowledge that research has to feed policy and practice for ideal sustainable socioeconomic development to be possible. The truth is that there is not much collaboration across disciplines in most research carried out in Nigeria. There is too much compartmentalization of research activities and there is inadequate translation of research into policy and practice. This means that there is not enough research carried out for development.

The result of this gap is Nigeria's inability to meet the target date of 2030 for achievement of the 17 Sustainable Development Goals (SDGs) set in 2015 by United Nations member countries, as

yardstick for poverty reduction and national development. These goals cover almost every aspect of human life and if achieved, sustainable national development will be possible. However, poor planning, poor utilization of outcomes of research for policy formulation, non-implementation of policies, inadequate stakeholder involvement, duplication of efforts and corruption among others work together to impede the achievement of the goals.

How do we solve this big problem that hinders sustainable socio-economic development in Nigeria?

I am of the opinion, and I am sure you will agree with me, that in Nigeria, as in other African countries, enough research has been conducted to move us much further up the ladder of development. Consider, for instance, the number of research projects conducted annually in tertiary institutions and research institutes in Nigeria. Consider the number of research outputs relevant to national development that are churned out by researchers in Nigeria annually. Consider the number of innovators who have produced prototypes relevant to solution of some of Nigeria's national problems. Also consider the huge number of professionals in Nigeria today who are capable of solving the problems of inadequate power supply, low potable water supply coverage, poor sanitation, land degradation, poor infrastructure, high prevalence of preventable diseases etc. In spite of all these, our problems persist. It is obvious that there is inadequate uptake of research output in our country.

Funding is often cited as a challenge to solution of our national problems but I am of the opinion that some fundamental challenges, other than funding, need to be addressed. After all, the funding support provided by TETFund alone to researchers in Nigerian tertiary institutions is huge! This brings me to the recent move by TETFund to promote *research for development* in Nigeria. This move is based on the conviction that, for national problems to be conclusively addressed, there is a need for healthy collaboration between researchers, government, industry and community in a triple (now quadruple helix) arrangement, irrespective of discipline. That is the only option!

With adequate trust built among these stakeholders, this collaboration will make it possible for research to feed policy and practice. The importance of this type of collaboration was clearly demonstrated during the COVID 19 pandemic in Nigeria. Researchers, government at all levels, industry (companies) and communities had to work closely together to contain the virus which humbled the world. The collaboration was so intense that security personnel had to be rightly assigned the responsibility of taking temperature of all entrants (including doctors and nurses) into

buildings, aircrafts and other venues. Community members also became risk communicators and case finders! What then should happen to ensure that these stakeholders work together?

First, all stakeholders in the helix must be sensitized on the need to actively work together.

Government, the key stakeholder (because that is where the political will resides) needs to

- review existing policies around major problems in Nigeria and ensure that they are based on evidence from research
- ensure that policies are not duplicated and are implemented
- improve on national Gross Domestic Expenditure on Research and Development (GERD), which for now is quite low. This will require improved in-country funding of research since, as generally observed, donor funded research are sometimes based on donor priorities and not on local socio-economic needs of Nigeria
- facilitate review of curricula at all levels to include aspects that will guarantee solid science foundation for students at sub tertiary levels of education and provide, at all levels, information about the determinants of socio-economic development as well as stakeholders responsible for addressing these determinants.

There is a critical need for **researchers**, the second stakeholder, to deliberately focus on research relevant to solution of national problems. The biggest chunk of research output comes from graduate students of our tertiary institutions. Presently, research activities are mainly conducted to fulfil requirements for acquiring higher degrees and for promotion.

However, it is pleasing to note that there are emerging efforts to redirect research in Nigeria with a view to improving quality and ensuring relevance to national development. Recently, in 2021, the Committee of Provosts and Deans of Postgraduate Colleges and Schools (CPDPGCS) in Nigerian Universities launched the Doctoral Academy of Nigeria with the mandate of *strengthening post graduate education, scholarship and research production in Nigeria by providing supervisors, students, and young researchers the opportunity to learn new approaches and skills in research*. In my keynote address at the training workshop, which was part of the event, I indicated that the quality of graduates produced as well as quality of research outcomes depend mainly on quality of supervision and mentorship received. Improving the capacity of PhD supervisors, particularly the capacity to mentor is pertinent, and should be sustained. These supervisors will then properly equip the students with knowledge and skills while also providing guidance for career direction and progression. I trust that the Doctoral Academy is still active and I hope that training has been

cascaded to all supervisors in all tertiary institutions in Nigeria. If this is the case, we should begin to see a significant paradigm and functional shift in PhD supervision in Nigeria. I am aware that some universities have already keyed into this initiative.

The Nigerian Academy of Science (NAS) has just concluded a project aimed at enhancing research capacity in Nigeria, as well as facilitating an enabling environment for research and researchers to thrive. This project paired selected early career researchers (ECRs) with mentors, and engaged them in a 5-month research mentorship programme working 2-4 hours a week. The outcome was commendable.

There is a need for Nigerian universities to step up community service which should result in positive impact of the host communities. For example, entrepreneurs in host communities should benefit from capacity building by experts in the universities. There should also be a significant contribution by universities to improvement of quality of life of inhabitants of the host communities

There is a strong disconnect between researchers and **industry**, the third stakeholder, because of poor research translation i.e., movement of research ideas from laboratories and workshops to practice. Trust between researchers and industry is definitely not optimal and this remains a formidable barrier to healthy and productive collaboration between the two stakeholders. One major cause of lack of mutual trust is that the culture of collaborating with industry is not mainstreamed early enough into training of researchers in Africa.

Another cause is that researchers are interested in research mainly for obtaining degrees, publishing, patenting and moving higher in the academic field. Impact of the outcome of their research on socio economic development, in most cases, is secondary in their minds. In most instances, research topics selected do not address commercial needs of industry, neither do they address socio economic problems of the nation. Reports of such research end up in journal papers and patents unknown to industry and arms of Government that need to use them. The realization that outcome of research may be useful to industry comes later in careers of researchers, usually after achieving all academic targets.

Industries, on the other hand, concentrate mainly on making profit and becoming the best among others in the same field. These industries hardly use output of research in improving qualities of products and services, perhaps because of lack of knowledge about existing research output relevant to their products and services. For instance, industries do not receive enough information

on the outcome of research funded by them through TETFund. I am not sure journals funded by TETFund, are circulated them not to talk of information about patents secured. This may also be applicable to other donors who fund research in Nigeria.

Trust is enhanced if the researcher comes in contact with industries early in his research career. This happens when opportunity is created for students to visit industries and, if possible, undergo internship in the industries. At the higher education level there should be interactions between researchers and industries in conferences and seminars. Participation of industries in research and innovation exhibitions needs to improve. These will make it easy for researchers and industries to conduct joint research aimed at solving problems. Joint publishing and patenting will also improve. It will also be easy to engage in contract research and research related consulting. In the process, some researchers may end up as contract employees of industries. Researchers will then seek to conduct research that will be beneficial to industries in addressing problems encountered in fulfilling their mandate. Industries may then deliberately invite researchers to solve such problems and provide needed support.

In recent years, both parties (researchers and industries) have made significant attempts at improving the collaboration which will be beneficial to each party and to the country. In response to increasing market competition, many industries have become increasingly keen on enhancing their innovation ability and are now seeking help from the academia. Some companies in Nigeria grant study scholarships to young researchers and provide research grants to researchers for work on areas of research that will address the needs of the company. Some fund capacity building trainings for researchers and build research laboratories in tertiary institutions and Institutes for research related to products and services rendered by the companies.

By locating laboratories, workshops and plants in research friendly environment, companies will surely benefit from research outcomes relevant to improving quality of its products. Researchers in these institutions will have the opportunity of working directly on the products and contributing to the improvement of quality.

It is necessary to implement interventions that will promote uptake of research outcomes by industry for improvement of qualities of products and services related to national development. It is clear that policies and guidelines are urgently needed to enable researchers and industry

collaborate in a manner beneficial to both sectors while the outcome of the collaboration addresses national socio-economic problems.

Communities, the fourth stakeholder, should be involved, (from planning through implementation to supervision and monitoring), in all initiatives related to community development and by extension, national development. Presently top bottom approach is adopted in most interventions by government and other stakeholders at community level. There is usually little or no consultations with communities. Communities are used to being dictated to, provided for and directed. Communities are usually not empowered to take decisions and implement interventions. They are voiceless in most instances. There is a need to encourage community participation and involvement in interventions at the community level. If this happens, communities will own the *problems* and actively participate in interventions to address the problems. There are community structures and procedures that must be mainstreamed into all stages of any intervention related to national development.

In closing, I must point out that there are numerous unutilized research outcomes relevant to national development in theses and publications on shelves and in libraries in Nigeria. Conferences, seminars and webinars are held regularly in Nigeria to discuss national problems. Communiqués, recommendations emanating from these meetings are rarely considered and implemented. Stakeholders are very busy talking to themselves within their silos.

There is a critical need to break the boxes and actualize the *quadruple helix* arrangement so that there is mutual effort by all stakeholders to address Nigeria's national problems. Government, in particular, must be made to realize that research can make a significant difference in solving Nigeria's development challenges. This will lead to healthy political will that will guarantee funding and conducive environment for research. A data bank (inventory) of all research conducted in Nigeria, sorted out in disciplines/problems and accessible to all stakeholders, will reduce duplication of efforts.

Going forward, apart from strengthening research, there is an urgent need to redirect research for national development by ensuring that research carried out address existing problems in Nigeria. This will require improved in-country funding of research since, as generally observed, donor funded research are sometimes based on donor priorities and not on local socio-economic needs of Nigeria. There is the critical need for this redirection to happen in tertiary institutions and

research institutes where research activities are mainly to fulfil requirements for acquiring higher degrees and climbing the academic ladder. It is also necessary to implement interventions that will promote uptake of research outcomes by industry for improvement of qualities of products and services. Most fundamental is need to review curriculum at all levels to include aspects that will guarantee solid science foundation for students at sub tertiary levels of education and provide, at all levels, information about the determinants of socio-economic development as well as stakeholders responsible for addressing these determinants.

I see a major role for Universities in Nigeria, National Academies and Professional Associations. These bodies and Institutions are best positioned to serve as intermediary (third party brokers, facilitators, translators, proctor) in bridging the gap between researchers, government, industries and communities. They should jointly work out innovative strategies, not recycled strategies, for advocating for improved political will and facilitate translation of this political will into needed actions. Gatherings such as this conference provide an opportunity to brainstorm and figure out what should be done as well as when and how. We just have to act fast to ensure that research feeds policy and practice otherwise we will keep going from where we were to where we were in terms of sustainable national development in Nigeria.

Let me leave you with a question. With 263 Universities, 84 Polytechnics, 205 Colleges of Education and many Research Institutes effectively addressing their mandates, should Nigeria's Human Development Index remain Low?

I thank the prof Aleruchi Chuku and her team for organizing this conference for inviting me to give the keynote address. I commend them for choosing a theme that is apt for Nigeria's situation at the moment.

I thank you all for listening and I wish you all a pleasant experience at this event.

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