



THE NIGERIAN ACADEMY OF SCIENCE

# Creating an Enabling Environment for Research in Nigeria: Lessons from COVID-19 Research in Nigeria

## Introduction

The key thrust of scientific endeavour is the generation of answers to the questions, and problems that plague humanity. Under optimal conditions, the outputs from scientific research provide a roadmap to guide the actions and policies of decision makers. The research landscape in Nigeria has challenges which impede the ability of researchers to conduct meaningful and impactful research. This handicap is further exacerbated during public health emergencies such as the ongoing corona virus disease (COVID-19) pandemic. In public health emergencies, the generation of evidence through research, for timely policy response, is crucial to ensuring the health of the society at large.

## The Tertiary Education Trust Fund (TETFund) Funding Support

In 2020, the Tertiary Education Trust Fund (TETFund), in line with its research funding mandate under the National Research Fund (NRF), launched the '*Special Grants for COVID-19 Research*' to provide funding for critical research which, in turn, would provide needed answers to address the COVID-19 outbreak in Nigeria. After the assessment of the proposals submitted in response to this grant call, six research projects, with potential outputs relevant to COVID-19 therapeutics and diagnostics, were approved for granting namely:

1. *Evaluation of Dammarenolic Acid and Extracts from Nauclea latifolia and Ramalina farinacea for Anti SARS-CoV-2 Activities;*
2. Identification of Potentially Effective Local Therapies for COVID-19;
3. *Efficacy of Selected Nigerian Herbal Medicines (NHM) in COVID-19 and Related Infections: Open-Label Randomized Controlled Trial;*
4. *Development of Simple Affordable PCR Technique, Immunology and Molecular Characterisation of SARS-CoV-2 (COVID-19) in Nigeria;*
5. *Evaluation of the Inhibitory Activities of Silymarin Against SARS-CoV-2; and*

6. *Rapid Identification and Evaluation of Potential Therapeutics for COVID-19.*

## The Nigerian Academy of Science (NAS) Engagement

To ensure that the outputs from these projects inform an integrated national approach to tackling the pandemic, TETFund invited the NAS to facilitate the execution of the six projects, disseminate key findings, and proffer policy recommendations for tackling COVID-19 (and future health emergencies) in Nigeria. As part of the activities under this remit, the NAS, through a Project Oversight Committee, engaged with the research teams through meetings, and visits to the research project sites. In addition, the Academy held a stakeholders' workshop to showcase findings from the commissioned research projects, as well as formulate strategies for strengthening Nigeria's research landscape, using the experience of the research teams under the *Special Grants for COVID-19 Research*. This brief summarizes the Academy's findings in the pursuit of the mandate from TETFund, as well as policy recommendations that will assist decision makers in creating an enabling environment for research in Nigeria.

## Key Findings

**1. Available Scientific Human Resource:** It was observed that there is interest and expertise within Nigeria's scientific workforce to conduct responsive research towards addressing this pandemic, and future key research in Nigeria. Additionally, the TETFund *Special Grants for COVID-19 Research* has provided opportunities for mentorship and capacity building for early career Nigerian scientists. It was noted that all the supported projects under the call were led by principal investigators with established research programs and reputations, and that creative new investigators may require separate calls or processes to access emergency research funding.

**2. Inadequate Access to Equipment for Research:** Most of the research teams under the TETFund grant were under-equipped. They lacked

the necessary equipment needed to conduct the research as contained in the approved proposals. The proposals could have been better assessed, they could have gone through additional steps before been approved. Furthermore, there was poor networking among the research teams and inadequate information about the equipment availability within the country that may easily be accessed and used. In a number of instances, the team members travelled outside of the country to use equipment that were available in other institutions within the country and that could have been used instead. Nevertheless, to be eligible for funding, there should be a minimum standard for a laboratory to meet before its selection for such studies.

**3. Lack of Resources for Clinical Trials:** Clinical trials are an essential component of research, especially studies aimed at the discovery of new therapeutics and diagnostics, and that involves human participants. However, the resources and skill for carrying out such trials are still lacking in the country. Also, most of the research teams had challenges with recruiting adequate numbers of participants for the clinical trials. This was attributed to the low number of eligible COVID-19 cases in their local communities at the time the researchers were ready for the exercise.

**4. Delayed and Inadequate Funding for Research:** There was a significant time lag between the approval of the research protocols, and the release of funds to commence the study due to bureaucracy. The issue of timely release of funds is a major factor, and in fact a serious impediment to the success of a well-planned study. The Treasury Single Account (TSA), a financial policy of the government - which merges all government revenues and payments through a Consolidated Revenue Account (CRA), was an impediment to the timely release of funds for research to researchers. Similarly, at the institutional levels, some universities further delayed the release of funds to investigators. Such delays are counterproductive to effective and timely generation of research data to inform policies, especially in response to public health emergencies such as COVID-19.

Furthermore, the depreciation in the value of the Naira affected the budgets of most of the projects under this Grant, especially for equipment, supplies, and reagents which had to be procured with foreign exchange. As at the time the research funds were disbursed, the exchange rate had changed significantly. This affected the funds available to make the budgeted purchases. Consequently, the research teams were hard pressed to work within the approved budget in their proposals. The identified bureaucracies and high fluctuation in foreign exchange contributed significantly to failure to conclude research studies timely or completely.

**5. Bureaucracies in the Importation of Materials for Research:** Another challenge identified by all research teams under the grant was bureaucracies and high duty charges when importing materials and equipment for research. The federal government's policy on funds transfer from Nigeria to other countries resulted in challenges that significantly hampered and delayed making payments for imported research materials. Also, the procedure and charges (as implemented by the Nigeria Customs Service) for clearing imported research materials was tedious with administrative bottlenecks.

**6. Delays in Ethical Approval:** Delays were encountered by some of the research teams in getting necessary approvals from the National Agency for Food Drug Administration and Control (NAFDAC), and National Health Research Ethics Committee (NHREC) for their research projects. This prolonged the time-frame required to commence and complete the projects, and also negatively influenced clinical trial patient enrollment.

**7. Expansion of the Global Knowledge base on COVID-19:** It was observed that inspite of aforementioned challenges, some of the teams had submitted findings for peer review in indexed journals. A search of the PubMed database for articles on COVID-19 revealed that 21,590 papers were published as at 20th June, 2022, and 152 publications included at least one Nigerian-co-author. 7 of these articles included a co-author granted under this call. Thus the available evidence

suggests that targeted calls in Nigeria have the potential to rapidly add to the global knowledge base.

## Recommendations

Arising from the workshop and discussions with research teams, the following recommendations are made in order to improve the Nigerian research landscape, and ensure the nation is better positioned to respond to COVID-19 and future outbreaks:

### 1. Ensure Quality and Capacity for Proposed Research:

The capacity to conduct proposed research, in terms of equipment, should be emphasised in the assessment process. There was a glaring lack of facilities/equipment to conduct the study in some of the research sites. TETFund should request evidence of availability of equipment needed to conduct proposed research projects. Also, TETFund should lay down specific criteria to be met by the assessors of proposals, and where needed, conduct capacity strengthening for the assessors. This would provide high-quality feedback to the proposing author(s), and improve the quality of proposals which eventually get funded.

### 2. Strengthen Partnerships and Collaboration:

Partnership and collaboration among Nigerian researchers should be strengthened. Researchers should be made aware of research facilities and equipment available across the country. This would prevent the need to go out of Nigeria in search of facilities/equipment that are available at other centres within the country. A database of ongoing research, as well as available laboratories and equipment is needed to facilitate this. TETFund should create an inventory of researchers with their facilities, equipment, beginning with, but extending beyond resources that TETFund has financed. This inventory should be made accessible to registered institutions on the TETFund website to help prospective applicants identify collaborators and collaborating institutions.

### 3. Foster Policy Coherence:

There should be policy coherence among government institutions. Besides allocating funds for research, the government should ensure that policies enacted by its agencies - Central Bank of Nigeria (CBN), NCS- do not impede

access to the funds, and importation of equipment. Where impediments exist, research procurement and use should be exempt from onerous requirements targeted at profit-making enterprises.

**4. Unplug Bottlenecks:** The execution of research, especially in the context of public health emergencies, needs to occur rapidly. While TETFund can work on early disbursement of funds to researchers, the institutions, where research projects are domiciled, should endeavour to release the funds to principal investigators in a timely manner. Ethical approval for research work should be expedited by NAFDAC and NHREC, while it is expected that researchers would submit their work for ethical clearances early.

### 5. Provide Adequate Funding for Research:

Scientific research requires adequate investments. In order to be prepared to respond to future health emergencies, allocating a certain percentage from the country's Gross Domestic Product (GDP) for research, and ensuring its implementation would be a vital way to sustainably fund research. This should be supported by legislative action.

### 6. Create Opportunity for Variation in Approved Funding:

Given the likelihood that associated bureaucracies' and foreign exchange fluctuations can lead to extra costs above approved budget, TETFund should consider variation of approved budget based on provision of authentic documentation and cogent reasons for a need for increased funding to meet extra costs arising; especially from foreign exchange fluctuations.

## Conclusion

Creating an enabling environment for research, particularly in public health emergencies requires multi-stakeholder action and collaboration between scientists, higher educational institutions, as well as government and its agencies.

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## About the Nigerian Academy of Science

The Nigerian Academy of Science (NAS) is the foremost independent scientific body in Nigeria which was established in 1977, and incorporated in 1986. NAS is uniquely positioned to bring scientific knowledge to bear on the policies/strategic direction of the country, and is also dedicated to the development and advancement of science, technology, and innovation (STI) in Nigeria. The aims and objectives of the Academy are to promote the growth, acquisition, and dissemination of scientific knowledge, and to facilitate its use in solving problems of national interest. The Academy strives to do this by:

- Providing advice on specific problems of a scientific or technological nature presented to it by the government and its agencies, as well as private organizations
- Bringing to the attention of the government and its agencies problems of national interest that science and technology can help solve
- Establishing and maintaining the highest standards of scientific endeavours and achievements in Nigeria, through the publication of journals, organization of conferences, seminars, workshops, and symposia, recognition of outstanding contributions to science in Nigeria, and the development of a working relationship with other national and international scientific bodies and academies

As with national academies in other countries, NAS is a not-for-profit organization with membership comprising 278 Fellows elected (since inception) through a highly competitive process who have distinguished themselves in their scientific fields both locally and internationally. Some of her members have also served as Vice-Chancellors of universities, Directors-General of government parastatals, and Ministers in federal ministries. The Academy, given its clout, also has the ability to attract other experts from around the country and internationally when needed. NAS is Nigeria's national representative on such bodies as the International Science Council (ISC) – the umbrella body for all science associations and unions, the InterAcademy Partnership (IAP) – the umbrella body for all national science academies globally, and the Network of African Science Academies (NASAC). The Academy is also a member of the executive committees of the IAP.



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