

# TIBA Out of Africa Fellowship Projects SYNTHESIS REPORT

November 2020

## INTRODUCTION

In 2019, the Tackling Infections to Benefit Africa (TIBA) project ([www.tiba-partnership.org](http://www.tiba-partnership.org)) awarded nine contracts totalling £740,239.12 under its TIBA out of Africa Postdoctoral fellowship. These contracts supported twelve African fellows to conduct research in areas chosen by their institutions in Botswana, Ghana, Kenya, Rwanda, South Africa, Sudan, Tanzania, Uganda, and Zimbabwe, and based on TIBA priorities and focus.

The intent of the fellowship was to fund projects that address one or more of the diverse challenges of health care systems in Africa—such as seeking to address a current knowledge gap that is resulting in either non-deployment of diagnostics or interventions, or a lack of operational knowledge to improve the health of affected populations. Each project was expected to have a specific outcome/impact that is relevant to the affected populations, require a budget of not more than £85,000, and which is achievable within a year. As part of the project implementation, each fellow had the opportunity to spend some time working at the University of Edinburgh (or another TIBA partner institution) to gain new skills and research experience.

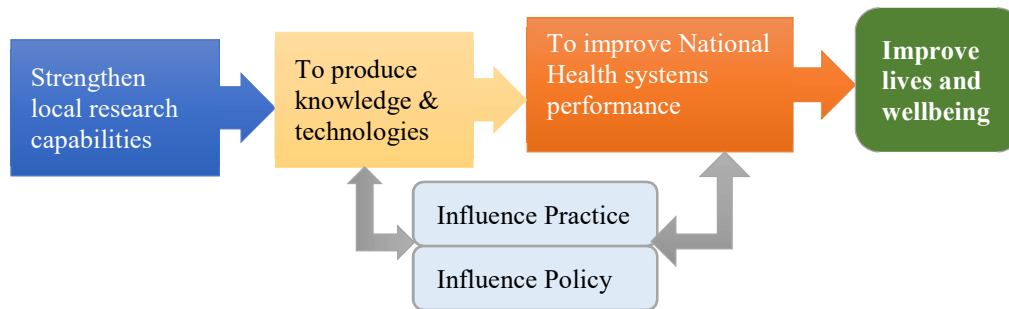
This report presents a synthesis of the lessons learned from the eleven of the fellowship projects implemented between March 2019 and May 2020. Unfortunately, due to the Coronavirus outbreak in January 2020, not all projects could be implemented fully. Consequently, the detailed analysis provided covers what was done by eleven Fellows from Botswana, Ghana, Kenya, Rwanda (two Fellows), Sudan, Tanzania, Uganda and Zimbabwe (three Fellows).

The remainder of the report is divided into three sections i.e., the analytical framework, methods and lessons.

## ANALYTICAL FRAMEWORK

The review is built on two premises: First, it departs from the argument that TIBA is a health system strengthening project that seeks to improve how African scientists tackle infections—specifically the neglected tropical diseases such as Schistosomiasis, Trypanosomiasis and Lymphatic Filariasis. The TIBA pathway to impact can be summarised as shown in Fig.1 below, with the objectives to: (i) **strengthening research capacity** (technical and operational), (ii) **generating evidence** (knowledge and technology); and (iii) **influencing policy and practice** (at national, institutional, community, Regional and global levels).

**Fig 1: Overview of the TIBA impact pathway**

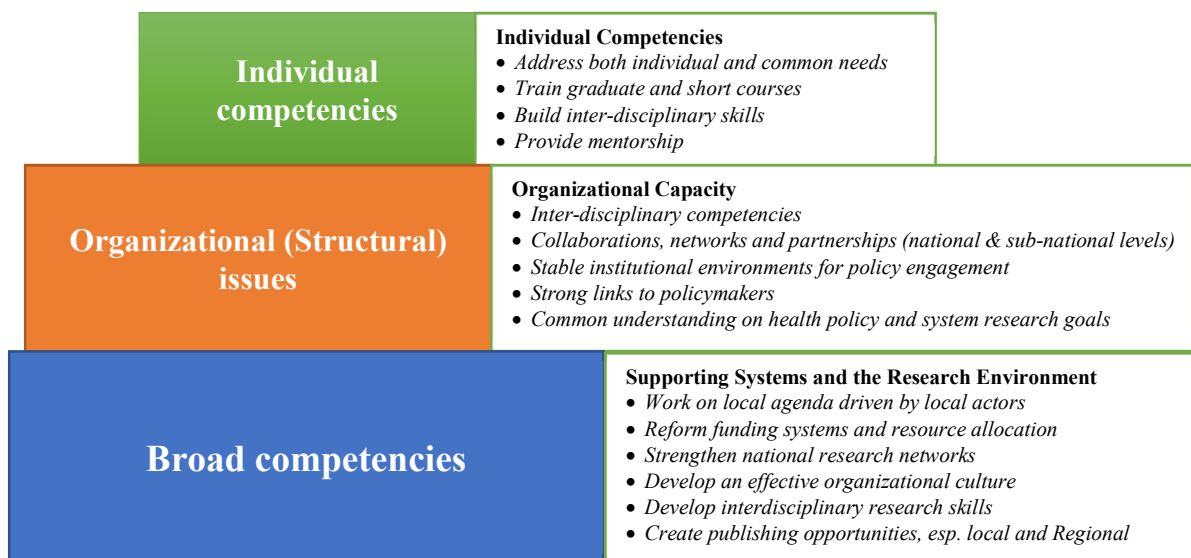


Source: Adapted from TIBA’s Theory of Change ([www.tiba-partnership.org](http://www.tiba-partnership.org))

Second, it adopts the Health Policy and Systems Research (HPSR) framework discussed in Bennet et al., (2011). HSPR is part of Health Systems Research (HSR) which is defined as a search for knowledge which contributes to health systems strengthening and our understanding of health systems—which is arguably necessary for achieving better global health (WHO, 2007). HSR is characterized by the questions it poses and the answers it provides that can help to strengthen our health systems or better understand the context in which they function; it is multidisciplinary; and is required to develop a stronger interdisciplinary culture in health research (AHPSR, 2012).

According to Bennet et al., (2011), there are three areas that need strengthening in health system research namely, (i) **individual competencies**; (ii) **Organizational capacity** (structural issues); and (iii) **Broad competencies** (supporting systems and the research environment). See Fig. 2 below. We pay attention to these three areas during the synthesis process.

**Fig 2: Hierarchy of approaches to capacity development HPSR**



Source: Adapted from Bennet et.al., 2011

## **METHODS**

Researchers from each project used a common outline for reporting the implementation of the projects. The outline included several sections designed and utilized to simplify comparisons between projects. The synthesis of lessons reported below was drawn from the different sections of each report, whose information was abstracted and placed into a matrix of individual records sorted under each project. The simple themes represented in each lesson statement were then constructed to summarize and communicate the most important conclusions based on the conceptual framework discussed in section 2 above. Some information was collected from the project proposals.

## **LESSONS**

This section presents the lessons learnt from the eleven research projects funded under the TIBA Out Of Africa Fellowships. As previously explained the lessons are analysed using the TIBA impact pathway summarised as Fig 1 above and the hierarchy of approaches to capacity development in health policy and system research summarised in Fig 2 above. Where relevant, implications of the lessons to TIBA are presented.

### **Step #1: STRENGTHENING LOCAL RESEARCH**

#### **Lesson #1: Going beyond biomedical sciences**

This involves researching all six building blocks identified in the WHO's 'Framework for Action' on health systems. Those include: Service delivery, information and evidence; medical products and technologies; health workforce; health financing; and leadership and governance. It implies asking deep questions that remove structural barriers and focusing on programmatic and operational questions. It also involves supporting action research that actively engages stakeholders in improving health systems (Bennet et al., 2011). Most TIBA Out of Africa Fellows addressed issues related to diagnosis, treatment and surveillance of malaria (Rwanda and Ghana), schistosomiasis (Botswana, Zimbabwe and Tanzania), sexually transmitted infections (Kenya), trypanosomiasis (Uganda) and leishmaniasis (Sudan) which largely fall under the medical products and technologies, and information and evidence blocks. One Fellow from Zimbabwe developed a biomedical curriculum which aims to improve the health workforce. According to WHO (2007), the prime focus of health policy and systems research is to go beyond a specific disease or service and look at the health system, as a whole. The Fellow from South Africa reviewed National Mass Drug Administration Programmes of Schistosomiasis done in sub-Saharan Africa by looking at issues beyond biomedical, while a Fellow from Zimbabwe looked at how different immune-diagnostics technologies are applied in disease surveillance. So, TIBA needs to encourage more of such studies that inform the practice beyond treatment and diagnosis, including putting priority on a population-based and preventive focus.

#### **Lesson #2: Promoting interdisciplinary research**

Strengthening health systems requires a multidisciplinary approach drawing upon a range of disciplines beyond biomedical, particularly social sciences including economics, sociology, anthropology, political science, psychology, management science, geography and history, as well as epidemiology (WHO,2007). The appropriate mix of disciplines to be used depends largely on the nature of the research question being addressed. Basically, framing health systems research questions in manners that allow integration of different disciplines is very important.

A shared understanding and use of research strategies, theoretical frameworks, research broader approaches and methodologies that promote interdisciplinary research to address operational, structural and programmatic issues in the health systems is also important. This means recognizing the complex array of global and local forces that influence health issues and address them as a system (Robson, 2002). Currently, theoretical frameworks and analysis of different skills required to answer a particular research question are not part of grant application requirements set by TIBA. This is therefore an area where TIBA could consider strengthening seeking to promote interdisciplinary research in health. To achieve

that, capacity building is needed to: (i) create and provide opportunities for conceptual work and methodological dialogue, exchange, training and seminars; (ii) create, exploring and promoting the use of interdisciplinary journals and online resources (libraries); and (iii) create exchange forums to share methods, tools and experiences in conducting and disseminating interdisciplinary work. Additionally, such capacities will also encourage researchers to theorize for impact and plan for stakeholder engagement, especially towards influencing policy.

### **Lesson #3: Using multiple-PI**

TIBA used the multiple-PI strategy, a known mechanism for multidisciplinary and collaborative health research among equals. It stimulates interdisciplinary science and accelerates the development of independent researchers and maximizes the establishment of a critical mass of competent mentors prepared to build research capacity for local up-and-coming scientists. By adopting this strategy, TIBA creates more opportunities for long-term research capacity development beyond using traditional training programs for developing researchers —achieved through deliberately integrating high-level mentored research training into its research projects.

### **Lesson #4: Driven by the understanding of the local context**

Health systems research needs to be driven by local actors who have an intimate understanding of their own health systems and the challenges that they face. Building capacity to enable country level policy- and decision-makers and managers to effectively “manage” the ownership is thus very important. According to WHO (2007) and Barnett et al, (2011), strengthening health systems and influencing policy require context driven research implemented at all stages of the research endeavour, from prioritization of research questions, to conceptualization and conduct of the research, to interpretation and communication of findings. Funding should therefore facilitate all actors including policy makers, civil society and researchers to have a say in determining the nature of research conducted. In these eleven studies, TIBA supported generation of evidence, knowledge and technologies relevant to the local context. The research topics and questions were decided by local institutions who responded to a local need. For example, a recent epidemic of Chikungunya in eastern Sudan highlighted the need to build a molecular diagnostic capacity to tackle endemic and emerging diseases. The fellowship was therefore regarded as an opportunity to train young fellows and led to acquiring a next generation sequencer currently not available in Sudan. Botswana also used the opportunity to extend a previous study conducted by the same institution, etc.

### **Lesson #5: Promoting local participation**

Local participation at all levels of health knowledge generation promotes equitable access to evidence-based solutions. Ethically and practically, the collective response to global health problems requires the participation and collaboration of populations and countries that bear the burden of these diseases (WHO, 2007). Through these Fellowships, TIBA provided the much-needed funds, but without dominating the research process. Decisions were made locally, from choosing the research topics to implementation, dissemination and publishing. TIBA also emphasized the engagement of different stakeholders, particularly communities, industry partners, other researchers and policy makers. However, because theorization was not done properly at the proposal writing stage, proper mapping of stakeholders and articulation of how each should be engaged was also not done. This made community engagement and local participation more arbitrary than systematic. It is important that TIBA emphasizes proper theorization and mapping of stakeholders in the future, in order to facilitate systematic engagement of relevant actors both for policy influence and impact.

### **Lesson #6: Promoting local leadership**

Leadership inclusive of competent local professionals promotes best outcomes for local contextualization and implementation of successful health solutions. Consequently, Africa needs to develop structures and strategies to train and retain more local researchers and attract more funding for research. The TIBA out of Africa Fellowship allowed local researchers to decide what to be funded based on local needs. Local PIs drove the studies and allowed the Fellows to learn and be mentored by people who understand the

local context. Co-PIs from Edinburgh only provided technical support on needs identified by local researcher during the proposal writing stage.

### **Lesson #7: Building a common understanding on health system research goals**

According to WHO (2007) and Bennett et al., (2011), institutions need a greater degree of shared perspectives, methodological understandings, and language among those who work in the field of each research/study. Developing a common approach to categorizing, organizing, and using the multiple theoretical frames and methods for health systems research, suitable for African context in necessary, as should guidance to help researchers select which type of approach will work best for different types of research questions. Researchers require knowledge on how to integrate relevant disciplines, methods, tools and approaches that will lead to effective policy influence. Providing this kind of knowledge ensures that the capacity to address health system research stays within the TIBA partner countries.

### **Lesson #8: Contributing to reforming funding systems and resource allocation**

This includes supporting strategies to increase domestic commitments and contributions in doing and driving local research agenda; reform systems to create stronger national ownership; and pool a proportion of international research resources at the country level and develop local systems and capacities to allocate these resources in an informed manner. TIBA achieved all these strategies by doing the following:

- a) Provided funds to implement research ideas developed by African institutions
- b) Built partnerships with African institutions to promote local ownership of research outcomes
- c) Disbursed funds to be spent by African institutions located in Africa. TIBA funds allowed spending on cost items deemed important by African researchers such as local salaries, salary recovery, consumables, fieldwork, other support, and equipment.

#### Specifically, TIBA achieved the following:

- Apart from strengthening the capacity of researchers in Africa to conduct research that will lead to control and eradication of NTDs, TIBA funding also provides opportunities for implementing collaborative research, training, networking, and covering the financial gaps that research institutions in Africa face. According to Sam-Agudu et al., (2016), most researchers in Africa obtain their PhDs from outside institutions, and scholarship and post-doctoral training is usually not part of the package. These academics go back to their home countries immediately after their PhDs without learning how to navigate research independence and project management and governance. TIBA funding to post-doc helps to build a group of young African scientists and equip them to compete effectively for international funding for research in their countries
- Supported PhD students and postdoctoral fellows in conducting research by filling financial and laboratory capacity gaps faced in their training institutions. These grants provide critical support to local master's and PhD graduate students who otherwise would have to personally fund their thesis and dissertation research because of little to no institutional support.
- Provide opportunities for pursuing interests in biomedical research and in enhancing capacity for other fields. For example, each fellowship had a capacity building component such training in molecular biology techniques, immunology and bioinformatics skills (Botswana); training in health systems and policy research (Kenya); skills in rosetting assays, flow cytometry, and genome alignment and comparative genomic analysis (Ghana); data management; health system policy analysis; and health intervention evaluation (South Africa); training on high-throughput Genome analysis using different available tools for DNA, RNA and proteomics (Sudan); training how to use multiplex diagnostic tool for purposes of tailor making a peptide chip appropriate for use in detecting endemic infections (Tanzania); and learning current state of the art disease data analysis and modelling tools (Uganda); etc.
- Strengthens research-environment in the partner academic institutions by providing resources, equipment, training opportunities, and opportunity to publish. All these are important in creating

the environment necessary for institutions to attract research funding, especially from foreign funders, as well as maintain their researchers, and generate impactful research outputs. According to Agudu et al., (2016), strengthening these research environments is a long-term endeavour that includes establishing availability of institutional support (e.g., experienced and competent finance and grants management services), equipment (e.g., well-supplied and staffed bio-medical laboratories), and other physical resources (e.g., database and data storage support).

- Supports development of research infrastructure (RIs), which is very important in closing the current African research capacity and productivity gaps. RIs refer to facilities, resources, and related services used by the scientific community to conduct maximal-impact research. These are at the centre of the knowledge triangle of research, education, and innovation, producing knowledge through research, diffusing it through education, and applying it through innovation (European Commission, 2010). These RIs can be unique to an institution, distributive across a country or region. TIBA works with nine countries and apart from building different capacities in individual countries', TIBA also promotes sharing and cross learning among different partner institutions and countries. International collaboration and cooperation is also supported. Now TIBA could also consider investing in promoting a greater understanding of theoretical frameworks, methodologies and approaches that promote interdisciplinary thinking and practices

### **Lesson #9: Promoting collaborations**

Collaborations are needed to drive local research agenda and sharing results to sustain impacts. These could be between public and private, research and industry, south and north institutions or south-south collaborations. All these are important in ensuring success in health research. Franzen et al., (2016) argues that, robust collaborations among African researchers, and with high-income countries are important in bidding for funding, and they require presence of enabling in-country structures as well as local research capacity in the form of competent scientists. TIBA funded the eleven fellowships as part of North-South collaborations. A joint committee involving partners from Africa and Edinburgh reviewed the proposals, and each Fellow was supervised and mentored by senior researchers from both Africa and Edinburgh. This is an example of how research collaborations can work particularly between African researchers and funding institutions from the North.

### **Lesson #10: Strengthening national research networks**

Putting emphasis on international funding and research consortia risks neglecting networks between researchers within a country. So, strengthening national research networks can help achieve the following: (i) strengthening the focus on national research priorities; (ii) enhancing capacity through bringing together researchers with differing disciplinary skills; and (iii) facilitating longer-term trust-based networks (Agudu et al., 2016). It is therefore important to support/fund collaborations, networks and partnerships both at national & sub-national levels. Currently, TIBA promotes networking among African researchers at national, Regional and continental levels. All Out of Africa Fellows were supervised by multiple PIs from different institution. Additionally, other researchers (including other post graduate students) were also involved in the studies as relevant. The Fellow in Botswana managed to forge a relationship between the university of Botswana (School of Nursing), Botswana Institute for Technology, Research and Innovation (BITRI) and the Neglected Tropical Diseases Unit of the Ministry of Health and Wellness (an important stakeholder in Neglected Tropical Diseases policy development and implementation). As a result of this collaborative effort, BITRI and the NTDs Unit of the Ministry of Health and Wellness agreed to write a research proposal together and submit it to the African Research Network for Neglected Tropical Diseases.

TIBA should therefore continue to promote national research collaborations as part of research work, and if possible, include success criteria to measure how research activities funded by TIBA strengthen national research networks. The use of multiple-PIs from different institutions adopted in these Fellowships should also be promoted in other programs



## **Lesson #11: Building capacity for upcoming researchers**

Launching independent investigator careers through mentoring and infrastructural support is very important. Upcoming researchers in Africa are faced with circumstances where research institutions are forced to privately finance their own research or remain stagnant. This in turn affects their ability to competently mentor and support students. Where the faculty mentor is underfunded and underdeveloped, the mentoring available to students will invariably be of low quality. This makes TIBA's support to mentoring and developing upcoming African researchers very useful to Africa. Basically, all twelve Fellows were mentored and provided with funds to advance their research skills, as well as publish. This means, TIBA supports individual career development and institutional research capacity strengthening. It basically provides hands-on skills throughout the research continuum, with their training grants also emphasizing traditional master's and PhD training program.

TIBA also creates more opportunities for long-term research capacity development beyond using traditional training programs to develop researchers, by deliberately integrating high-level mentored research training into its research projects. The multiple-PI mechanism strategy is well adopted and seem to work well. However, developing and agreeing on basic standards for mentorship will be useful in ensuring consistency. It will also provide the opportunity to monitor and assess progress of mentees. A more structured mentorship program is expected to ensure a steady availability of active, competent, and motivated research mentors at research institutions. This is important because only active, engaged, and competent mentors can develop vibrant, successful, independent researchers. Currently, there is an unacceptable shortage of local mentors with adequate expertise, resources and academic maturity to mentor young investigators (Bennet et al., 2011).

## **Lesson #12: Addressing both individual and common needs**

Tailoring training programs to both individual and common needs is necessary because health researchers are from varied backgrounds and needs. Some may be trained social scientists who have little understanding of the health sector but wish to apply their skills to health systems questions. Many come from broad public health backgrounds, perhaps with experience in disease control programs. Others are clinical practitioners or researchers who usually have very limited exposure to social sciences. Given the diversity of individuals entering the field, training programs need to be tailored to the needs of different types of entrants, while still ensuring a common basic training in health system research concepts, approaches, and terminology. Both graduate and short courses are important in strengthening health system research capacity.

The training components of the TIBA Out of Africa Fellowship were tailored to needs of individual researchers required to meet broader institutional and TIBA goals. This should be continued. However, a room to develop general skills needed by all researchers should also be provided.

## **Step #2: PRODUCING KNOWLEDGE**

### **Lesson #13: Generating evidence and contextualization**

Evidence generated from outside Africa can be and is being contextualized and applied for local health. Therefore, through these Fellowships, TIBA enhanced Africa's capacity to generate new knowledge locally that can be integrated into global health and implemented on a much wider scale outside the Africa. These eleven studies have generated information and knowledge to help Africa meet local health needs and at the same time address global health goals and priorities. Generally, they all contribute to the collective understanding of how African health systems can be strengthened towards gaining the technical and operational capacity to tackle infections that are relevant to Africa through research and, ultimately, impacting lives. By providing fellowships through an existing North-South partnership with research institutions, and by asking local institutions to collectively decide on the research questions, and by also involving PIs from both parties, TIBA ensured the possibility of African researchers to generate useful knowledge/evidence and also the quality of such knowledge/evidence.

### **Lesson #14: Building the capacity to publish**

Helping African scientists to publish articles of local interest and focus is important. Difficulties in publishing undermine career development of researchers, and lack of country and regional journals reinforces the financial incentives for researchers to focus on global priorities rather than national ones. Therefore, activities that support and promote development and access to journals that particularly focus on specific countries or regions by African Scientists, are needed. Building the capacity of researchers to access (qualify for) a broad range of general health journals as well as encourage different journals to review their policies in terms of accommodating interdisciplinary papers and general articles that focus on local issues, and possibly of no international interest/focus is also helpful.

TIBA encourages researchers to publish and provides support in accessing different journals, i.e., by promoting co-authorship or by paying publishing fees. All Fellows reported to have either published or are planning to publish articles. Generally, publications are very important to TIBA. However, some Fellows could not publish, mentioning difficulties in getting their articles published. Therefore, more deliberate efforts are needed to assess challenges currently facing these researchers and address them. Solutions may be individual based where training and other technical support is required, or organizational where strategies to create more opportunities to publish will be needed.

## **Step #3: IMPROVING NHS PERFORMANCE (Influence Policy & Practice)**

### **Lesson #15: Investing in both direct and indirect ways to influence policy**

Direct forms of knowledge translation such as development policy briefs, and hosting of dissemination workshops are important, but they risk the danger to overlook the less visible, structural factors that critically influence the policy /research interface. More indirect policy influence activities such as development of long-term relationships between researchers and policy makers, built on mutual trust and familiarity with the contexts within which each other works can bring more significant and lasting impacts on policies (Innvaer et al., 2002; Grimshaw et al., 2012). Research is expected to lead to changes in policy and practice. However, research findings can also be influential in less direct ways, for example, by shifting the framing of health policy debates, and gradually influencing the nature of dialogue (Walt, 1994; Kuruvilla et al., 2007). These indirect influences of research can be more significant than direct ones. Frequently, direct use of research addresses marginal changes or technical questions. research evidence that shapes understanding of the complexity of a problem may ultimately lead to more substantial reforms and greater impacts—but through longer and more circuitous routes (Lewis, 2011).

Judging from the eleven studies under review, deliberate efforts are needed to strategize and build the capacity of African researchers to influence policy and practice. This involves learning different ways to disseminate research findings beyond the traditional workshops, policy briefs and publications. This starts with theorizing impact and mapping stakeholder, then strategies how, when and where to disseminate which information and what needs to be done in short, medium and longer terms.



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