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Short report

Overall conclusions and lessons learned from CIMTRADZ

John Baligwamunsi Kaneene[1,&], Margaret Loy Khaitsa[2]

[1]Center for Comparative Epidemiology, Michigan State University, 736 Wilson Rd, Room A-109, East Lansing, Michigan, 48824, USA, [2]Department of Pathobiology and Population Medicine, College of Veterinary Medicine, Mississippi State University, P.O. Box 6100, Mississippi, 39762, USA

[&]**Corresponding author:**
John Baligwamunsi Kaneene, Center for Comparative Epidemiology, Michigan State University, 736 Wilson Rd, Room A-109, East Lansing, Michigan, 48824, USA

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Corresponding author: John Baligwamunsi Kaneene, Center for Comparative Epidemiology, Michigan State University, 736 Wilson Rd, Room A-109, East Lansing, Michigan, 48824, USA (kaneenej@cvm.msu.edu)

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Abstract

This chapter summarizes major findings of the papers presented in this special issue of the Journal, and provides critical lessons learned from the *"Capacity Building in Integrated Management of Transboundary Animal Diseases and Zoonoses (CIMTRADZ)"* project. The overall goal was to develop human and institutional capacity to manage transboundary animal diseases and zoonoses in East and Central Africa. An interdisciplinary team of biomedical, physical, and social scientists from multiple institutions was formed. The goal was accomplished by developing training programs for: 1) under-graduate and graduate students, 2) faculty and graduate students in competitive grants writing, and budget management of grants; enabling junior faculty to spend short time periods in the United States universities for targeted training in the use of cutting-edge research tools; conducting research in East and Central Africa; and developing collaborative partnerships in research and training between universities, and 3) outreach programs. Major outcomes of the program include: increase of junior faculty trained in cutting-edge research, students trained at Master of Science and Doctor of Philosophy level in transboundary animal diseases and zoonoses, creation of teaching course modules, forming critical collaborative partnerships between the United States and African universities, and successfully competing for researchand training grants. A multifaceted interdisciplinary program was successfully implemented. The project resulted in outcomes of great impact, as well as, significant collaborative partnerships between the United States and African universities. Several lessons were learned that would be useful to researchers in similar programs and to policy makers.

Short report

Global pandemic threats have shown that developing regions of the world (especially sub-Saharan Africa and Southeast Asia), appear to be at an increased risk of experiencing emerging and re-emerging animal transboundary and zoonotic diseases. This observation has dictated that strengthening animal health (both domestic and wild) and public health systems be a global priority [1, 2]. Therefore, the overall goal of the *"Capacity Building in Integrated Management of Transboundary Animal Diseases and Zoonoses (CIMTRADZ)"* project was to develop human and institutional capacity to manage transboundary animal diseases and zoonoses in East and Central Africa (ECA). To accomplish this overall goal, it was critical to develop human and institutional capacities in areas such as new approaches to teaching, original research conducted on disease problems in the region, training future professionals, providing opportunities for acquiring skills in writing competitive grants, technical and financial management of grants, skills in designing and implementing surveillance and disease outbreak investigations, and engaging the communities in controlling these diseases. The purpose of this paper is to present the overall design of the project, major findings, and lessons that were learned.

To accomplish the overall goal of the CIMTRADZ, the following activities were conducted: 1) An interdisciplinary multi-institutional Africa–US Integrated Disease Management (AFRUS-IDM) network was formed. The AFRUS-IDM network was composed of individuals in disciplines such as Epidemiology, Microbiology, Public Health, Human Medicine, Veterinary Medicine, Pathology, Sociology, Computer Science, and Communication. The individuals came from six African universities, three Non-government Organizations (NGOs) in Africa, and seven Universities from the United States (US), and one university from Canada; 2) Training programs for under-graduate and graduate students were developed; 3) Several training programs for faculty and graduate students were developed and offered including in: competitive grant writing, budget and accountability in management of grants, and publication of scientific findings; 4) Junior faculty from Makerere University spent short periods of time in US universities for targeted training in the use of cutting-edge research and teaching approaches; 5) original research was conducted in ECA and US; 6) Collaborative partnerships in research and training between US and ECA universities were developed; and 7) several community outreach activities were completed.

The CIMTRADZ was a timely project that resulted in significant accomplishments. The following were the 8 major accomplishments from the project: 1) Formed a solid network of African and North American Universities; 2) Developed a permanent summer training program in infectious diseases management; 3) Developed an annual Cultural Boma and conference for scientific exchange of information that is still ongoing; 4) Trained a number of Master of Science (MS) and Doctor of Philosophy (PhD) students; 5) Developed critical courses and workshop modules in various aspects of transboundary animal diseases and zoonoses; 6) Increased capacity in individuals trained in research, grant management, ethical scientific conduct of research, and laboratory standard operating procedures (SOPs); 7) Published papers and policy briefs from the project; 8) Functional partnerships have been created between US and African Universities; 9) Established a Women Leadership training model (Higher Education Resource Services, East Africa) that is operational; 10) Learned many lessons that would benefit future researchers and policy makers (see discussion section).

This project was complex and logistically challenging. It involved a variety of disciplines and individuals from several countries and departments. Despite this complexity, the project was a great success and produced outcomes and outputs that have made significant impacts on several fronts. Several lessons were learned from implementing partnership activities that could be useful to Higher Education Institutions exploring similar collaborative global health research activities and to policy makers.

Understanding local university and country context

It is critical that the culture and attitude towards research and training in each of the institutions be recognized and appreciated. Sensitivity to cultural differences was emphasized in all communications and meetings. This understanding of culture and respect of norms elevated anxieties regarding the implementation of the project and allowed them to set realistic milestones. International work is increasingly cross-national and cross-cultural in nature, and a central challenge is ensuring that people from different backgrounds work together effectively [3]. Other scholars predicted that the best universities will be those that have established strong structural relationships with other top universities around the world, and that success or failure in these relationships will be determined by how cultural differences are managed [3]. Globalization does not mean the end of difference, but that we now have to deal with difference directly instead of at a distance [3].

Effective communication

Establishing effective and open communication is essential in a project of this complexity involving different institutions and countries. In our experience, this was one of the most challenging aspects of the project, and we would recommend to others conducting similar projects to give this a top priority and also to allocate sufficient funds. Other scholars have intimated that effective communication plays a significant role in accomplishing international collaboration and ensuring the most effective use of research resources [4].

Training of project personnel

Training of the project at the beginning was important and ensured a clear understanding of expectations from all parties involved. For example, all Partnership Directors for the CIMTRADZ, and 10 similar projects in sub-Saharan Africa, were trained in Washington, DC in the US and at a regional meeting in Addis Ababa, Ethiopia. Also, training of project management personnel at host institutions in appropriate project reporting and accountability improved the quarterly reporting and evaluation of project activities. In addition, training assured a smoother working relationship with both the grant agency and the accounting personnel at the partner institutions.

Budget and accountability training

We found that most people on the project needed a lot of training in budget management and accountability. This training was more effective when done formally and repeatedly with specific individuals who managed the budget and the various principal and co-investigators.

Benefit of a consortium model approach

A consortium model approach enhanced the partnership success as each institution contributed different strengths to the project. For example, North Dakota State University (NDSU) and Makerere University (Mak) jointly developed a Master of Science degree in International Infectious Disease Management and conducted student exchange; Michigan State University (MSU) provided leadership in Evaluation of Surveillance systems in East Africa, and disease outbreak investigation and diagnostic pathology; Washington State University (WSU) provided leadership in policy courses; Columbus State University (CSU) provided leadership in Service Learning and Community Engagement; and Mississippi State University (MSSU) provided leadership in disease outbreak investigation, and international summer course training.

Aligning of priorities

Focusing on well-defined and mutually agreed upon problem-solving plans to develop institutional capacity and address national development challenges, while aligning with national and United States Agency for International Development (USAID) strategic priorities, was crucial.

Monitoring and evaluation plan

Developing of a well-defined results framework, and monitoring an evaluation plan to track progress toward targets contributed to project success. With support from Higher Education for Development (HED), detailed partnership implementation plans were developed and tracked using Partnership Reporting Implementation & Monitoring Engine (PRIME).

Synergism and leveraging of additional funds

We witnessed the value of synergistic activities and working with other institutions, agencies, and organizations with similar goals. The partnership synergistic activities with entities, such as USAID Emerging Pandemic Threats – RESPOND program, the United States Department of Agriculture-Foreign Animal Service (USDA-FAS), and the Borlaug

Fellowship Program, contributed to project success. Such partnerships resulted in leverage of additional funds that expanded the breadth of project activities.

Conclusion

A multifaceted interdisciplinary program was implemented to address research and training needs relevant to trans-boundary and zoonotic diseases. The program involved universities from high income and low income countries, and produced outcomes of great impact that are mutually beneficial. Several lessons were learned that would be useful to future researchers in the similar programs and to policy makers.

Overall

- Several bilateral partnerships between individual African universities and North American universities do exist, but partnerships involving multiple universities are limited.
- A partnership network of multiple African and North American universities and multiple disciplines was developed, and it built capacity in the management of transboundary animal diseases and zoonoses;
- Significant outcomes, such as special course development, training of graduate students and young faculty, and research in transboundary and zoonotic diseases were accomplished;
- Provides critical lessons learned from the experience which will be of value to other institutes of higher education and policy makers.

Competing interests

The authors declare no competing interest.

Authors' contributions

Both authors contributed to writing the article, reviewing several drafts, and approval of the version to be published. Both authors served as Guest Editors to all manuscripts published in this issue. Additionally, both authors were collaborators on the project, and played a significant role in its implementation. All authors have read and agreed to the final version of this manuscript and have equally contributed to its content and to the management of the case.

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