

Directorate of Research, Innovation and Development
University of Management and Technology

Project Proposal

Client: National Science Technology and Innovation Council (NSTIC)

Title of proposed project: Innovative Community-Based Interventions for Maternal and Child Health in Sierra Leone

1. EXECUTIVE SUMMARY

This proposed 18-month research project is dedicated to transforming maternal and child health in Sierra Leone through innovative community-based interventions. Despite global healthcare advancements, Sierra Leone continues to struggle with alarmingly high maternal and child mortality rates. This research will employ a multi-faceted approach, uniting a team of dedicated researchers, healthcare providers, and Community Health Workers (CHWs). The core of our mission is the implementation and rigorous evaluation of diverse community-based interventions carefully tailored to address unique challenges in Sierra Leone. These interventions encompass CHW-led healthcare services, and the power of mobile health (mHealth) solutions. We will complement these initiatives with culturally sensitive community health education programs. Our robust monitoring and evaluation framework will enable real-time adjustments to interventions, ensuring they remain effective and responsive. Upholding ethical standards, we will prioritize the rights and privacy of all research participants. The research will be gender-sensitive; we will challenge existing norms and empower women while promoting equitable healthcare practices. Sustainability is paramount, with community ownership, capacity building, and innovative funding mechanisms at the forefront. Our research aspires not only to inform but to inspire, serving as a model for regions struggling with similar challenges. Through rigorous data collection, capacity building, community engagement, policy advocacy, and sustainability planning, we aim to catalyze improved maternal and child health outcomes in Sierra Leone, charting a path toward healthier and more equitable societies.

2. BACKGROUND AND RATIONALE

Sierra Leone has a population of 7,548,702 (2021)¹; and it is divided into six (6) administrative blocks called regions: (Western Area Urban, Western Area Rural, Northern Region, Northwestern Region, Eastern Region, and Southern Region). Freetown, the capital city and hub for major economic activities in the country. GDP growth is estimated at 4.0% in 2021². The country has historically faced formidable challenges in maternal and child health. These challenges are rooted in a complex interplay of socio-economic factors, limited healthcare infrastructure, and a history of conflict and instability. The nation's maternal mortality ratio has remained alarmingly high. Child mortality rates also remain elevated, largely due to preventable causes such as malnutrition, infectious diseases, and inadequate healthcare access.

The healthcare system in Sierra Leone is predominantly rural and under-resourced, with many remote communities lacking access to adequate healthcare services. Furthermore, traditional beliefs and practices often influence maternal and child healthcare decisions, sometimes leading to harmful practices and delays in seeking professional care.

Our research project is a resolute response to a humanitarian crisis. The rationale driving our mission is rooted in the belief that Sierra Leone's maternal and child health system can be transformed through community-based interventions that are culturally sensitive, gender-responsive, and sustainable. Community-based interventions hold the promise of bridging the gaping chasm between healthcare services and those who need them most. By empowering local communities and healthcare providers to become active agents of change, we aim to usher in a new era of maternal and child health excellence. Through rigorous research, community engagement, policy advocacy, and sustainable interventions, we aspire to catalyze this transformative change.

3. PROJECT GOAL AND SPECIFIC OBJECTIVES

¹ 2021 Mid-Term Census, Statistics Sierra Leone.

² Statistics Sierra Leone (2023) www.statistics.sl

The main goal of this research is to explore and implement innovative community-based interventions for maternal and child health in Sierra Leone, with a focus on significantly reducing maternal and child mortality rates and improving healthcare access and quality.

Specific Objectives

1. To identify and prioritize innovative interventions that could reduce maternal and child mortality in Sierra Leone;
2. To develop sustainable implementation strategies;
3. To engage and train community health workers (CHWs);
4. To leverage technology for health promotion;
5. To evaluate intervention impact and adapt strategies as needed; and
6. To advocate for policy support and sustainable funding.

4. PROJECT METHODOLOGY/ APPROACH

Our approach to delivering the study objectives and expected deliverables is summarized in the matrix (Table 1) below.

Table 1 – Research Approach Matrix

Specific Objectives	Analytical framework	Data Sources/Instruments for analysis
Assess Maternal and Child Health Needs	We will comprehensively examine healthcare access, service utilization, socioeconomic determinants, and healthcare outcomes. We will integrate quantitative and qualitative data to identify disparities, community-specific challenges, and cultural factors impacting maternal and child health, facilitating evidence-based interventions.	<ul style="list-style-type: none">• Desk Research and Primary DataHealth Facility Records: analyze health facility records and databases to gather quantitative data on maternal and child health outcomes, including maternal mortality rates, child mortality rates, and vaccination coverage.Reports on Household Surveys: Review reports on household surveys to collect information on health-seeking behaviors, access to healthcare services, and maternal and child health practices within communities.Government Health Reports: access official government health reports, which often provide aggregated data on maternal and child health indicators, healthcare infrastructure, and policy initiatives.Community Health Workers (CHWs): collaborate with CHWs in the selected community who can provide valuable qualitative data and community-specific insights into maternal and child health needs, barriers, and community dynamics.Community Needs Assessment Survey: develop a simple survey to understand the unique maternal and child health needs of the community, including barriers to accessing care and preferred interventions.

Identify and Prioritize Innovative Interventions	<p>We will identify, evaluate, and prioritize innovative community-based interventions that have shown promise in similar contexts or through pilot programs. By selecting evidence-based interventions we will be able to ensure the efficient allocation of resources and maximize the potential for positive impact.</p>	<p>Desk Research and Primary Data</p> <ul style="list-style-type: none"> • Literature Review and Evidence Synthesis: This secondary data source will provide insights into the effectiveness of various interventions and their applicability in the Sierra Leone context. • Stakeholder Consultations and Expert Interviews: engage in consultations with local healthcare providers, community leaders, NGOs, and government health officials through interviews or focus group discussions. These discussions will provide qualitative insights into the feasibility and relevance of potential interventions. <p>Multi-Criteria Decision Analysis (MCDA): use MCDA techniques to systematically evaluate and prioritize potential interventions based on predefined criteria, such as effectiveness, feasibility, scalability, and cost-effectiveness.</p> <p>SWOT Analysis: we will perform a SWOT analysis to identify the internal and external factors that may influence the success of each intervention.</p>
Develop Sustainable Implementation Strategies	<p>We will develop sustainable implementation strategies for the selected interventions, considering resource constraints, community engagement, and long-term scalability.</p>	<p>Desk Research and Primary Data</p> <ul style="list-style-type: none"> • Longitudinal Program Data: we will collect data on the implementation and outcomes of existing maternal and child health programs, if available. Longitudinal data can offer insights into the sustainability of past interventions, including challenges faced and successful strategies employed. • Community Engagement Feedback: we will engage in ongoing feedback and dialogue with community members and key stakeholders, including women and families affected by maternal and child health initiatives. <p>Sustainability Assessment Framework: we will develop a sustainability assessment framework that includes key dimensions such as financial sustainability, institutional capacity, community ownership, and policy alignment.</p>
Engage and Train Community Health Workers (CHWs)	<p>We will select, train, and deploy a network of CHWs in target community, equipping them with the necessary skills and knowledge to provide maternal and child health</p>	<p>CHW Training Records: we will collect data on CHW training programs, including the curriculum, duration, and training materials used.</p> <p>CHW Performance Data: we will gather data on CHW performance, including their service delivery, community interactions, and adherence to protocols.</p>

	<p>services. This is particularly important because CHWs play a pivotal role in bridging the healthcare gap in underserved areas and ensuring the continuity of care.</p>	<p>CHW Training Evaluation Surveys: we will develop surveys to assess the knowledge, skills, and confidence of CHWs before and after training. These surveys can measure the impact of training programs on CHW capabilities.</p> <p>Community Feedback Mechanisms: we will establish feedback mechanisms, such as community surveys or focus group discussions, to collect feedback from community members on their interactions with CHWs.</p>
<p>Leverage Technology for Health Promotion</p>	<p>We will explore the use of mobile health (mHealth) solutions, such as SMS campaigns or mobile apps, to disseminate health information, provide reminders, and encourage health-seeking behaviors among pregnant women and mothers. Technology can enhance health education and adherence to healthcare guidelines, especially in areas with limited access to healthcare facilities.</p>	<p>Mobile Health (mHealth) Platforms: we will gather data from mHealth applications, SMS reminders, and other mobile-based health interventions. This data can include user engagement metrics, health behavior change data, and user feedback.</p> <p>User Feedback Analysis: we will administer feedback forms to users of technology-based health promotion interventions. We will analyze the responses to assess user satisfaction, perceived impact on health behaviors, and suggestions for improvement.</p>
<p>Evaluate Intervention Impact and Adapt as Needed</p>	<p>We will implement a robust monitoring and evaluation framework to assess the impact of the interventions on maternal and child health outcomes. We will use the findings to make necessary adjustments.</p>	<p>Health Facility Records: we will access health facility records and databases to gather quantitative data on maternal and child health outcomes, including changes in maternal mortality rates, child mortality rates, and vaccination coverage after implementing the interventions.</p> <p>Community Focus Groups: we will conduct focus group discussions within the target communities to collect qualitative data on community perceptions, experiences, and feedback regarding the impact of the interventions on their health and well-being.</p> <p>Comparative Analysis: we will use comparative analysis to compare pre- and post-intervention data to measure changes in maternal and child health indicators.</p> <p>Qualitative Data Analysis: we will employ qualitative data analysis techniques, such as thematic analysis, to extract insights</p>

		from community surveys and focus group discussions.
Advocate for Policy Support and Sustainable Funding	We will advocate for policy changes that support the integration and scaling of successful interventions into the national healthcare system. We will also seek sustainable funding mechanisms from government, donors, and stakeholders.	Desk Research and Primary Data Government Health Records: we will analyze government health records to understand current healthcare policies, funding allocations, and maternal and child health indicators. Questionnaires: we will administer questionnaires to policymakers, healthcare providers, and community members to gather information on their perceptions, needs, and priorities regarding maternal and child health policies and funding. Budgetary Reports: we will examine government budgetary reports and allocations to determine the current funding levels and trends for maternal and child health programs. Policy Documents: we will analyze existing policy documents related to healthcare, focusing on maternal and child health policies, to identify gaps and opportunities for improvement. Stakeholder Interviews: we will conduct interviews with key stakeholders, including government officials, donors, and representatives from non-governmental organizations, to gain insights into their perspectives on policy support and funding.

5. ANTICIPATED OUTPUTS AND OUTCOMES

In addition to producing a detailed research report as one of the key deliverables, the following other outputs and outcomes are expected.

Table 2

Output	Outcomes
a. Research Publications Peer-reviewed research articles presenting the study's findings will be published in reputable journals, contributing to the academic knowledge base on maternal and child health interventions in low-resource settings.	a. Informed Policy Decisions Policymakers will have access to evidence-based recommendations, leading to the development and implementation of policies that prioritize community-based interventions for maternal and child health.
b. Policy Briefs Concise policy briefs summarizing key research findings and recommendations will be disseminated to government agencies, NGOs, and international organizations to inform policy decisions.	b. Improved Healthcare Practices Healthcare providers and Community Health Workers (CHWs) will benefit from insights into effective strategies, leading to improved maternal and child healthcare practices at the community level.

<p>c. Data Sets</p> <p>Cleaned and anonymized data sets will be made available to the research community and organizations working in maternal and child health for further analysis and research.</p>	<p>c. Increased Community Engagement</p> <p>Communities will be empowered with knowledge and awareness of maternal and child health, leading to increased community engagement and advocacy for healthcare improvements.</p>
<p>d. Presentation of findings (in-person/virtual)</p> <p>Researchers will present findings at national and international conferences, fostering dialogue among stakeholders and promoting knowledge sharing.</p>	<p>d. Scaling of Successful Interventions</p> <p>Successful community-based interventions identified through the research will serve as models for scaling similar programs in Sierra Leone and other regions facing similar challenges.</p>
<p>e. Community Reports</p> <p>Tailored reports will be shared with participating communities, providing them with insights into the research findings and the impact of the interventions on their maternal and child health outcomes.</p>	<p>e. Enhanced Research Capacity</p> <p>Local researchers and healthcare professionals will benefit from capacity-building opportunities and experience gained from participating in the research project.</p>
	<p>f. Sustainable Interventions</p> <p>The research will provide insights into the sustainability of community-based interventions, helping to ensure their continued impact beyond the research period.</p>

6. KNOWLEDGE UTILIZATION AND DISSEMINATION PLAN

We will use a comprehensive knowledge utilization and dissemination plan that aims to maximize the impact of the research on maternal and child health in Sierra Leone by ensuring that the research findings are accessible, actionable, and influential at multiple levels, from local communities to national policy circles and international audiences.

1. Stakeholder Engagement:

- **Engagement Workshops:** Organize workshops with key stakeholders, including government officials, healthcare providers, CHWs, and community leaders, to introduce research objectives and seek their input and feedback.
- **Advisory Committee:** Establish an advisory committee comprising experts, policymakers, and community representatives to guide the research process and ensure relevance to local needs.

2. Dissemination Strategy:

- **Policy Briefs:** Develop succinct policy briefs highlighting key findings and actionable recommendations for policymakers. Distribute these to relevant government ministries and agencies.
- **Academic Publications:** Submit research findings to peer-reviewed journals in the fields of public health, maternal and child health, and global health.

- **National and International Conferences:** Present research findings at conferences and seminars, facilitating dialogue and knowledge exchange among researchers, practitioners, and policymakers.
- **Community Reports:** Prepare accessible reports summarizing research outcomes for distribution within participating communities, ensuring that the benefits and insights of the research reach the local level.

3. Capacity Building:

- **Training Workshops:** Conduct training workshops for local researchers, healthcare providers, and CHWs to enhance their research and implementation capacities.
- **Community Health Worker Training:** Offer specialized training to CHWs on best practices in maternal and child healthcare, based on research findings.
- **Research Dissemination Workshops:** Train researchers and stakeholders in effective communication and dissemination strategies.

4. Data Sharing:

- **Data Accessibility and Data Use Agreements:** Create a data repository or platform where cleaned and anonymized research data sets can be accessed and shared by other researchers and organizations interested in maternal and child health.

5. Community Engagement:

- **Community Feedback / Health Education Sessions:** Organize community feedback / health education sessions to discuss research findings and gather insights and recommendations from community members.

6. Advocacy and Policy Influence:

- **Advocacy Campaigns and Policy Briefings:** Collaborate with local and international NGOs to launch advocacy campaigns based on research findings, advocating for policy changes and increased investment in community-based maternal and child health interventions. Arrange briefings with government officials and policymakers.

7. Sustainability Planning:

- **Long-Term Partnerships:** Establish enduring partnerships with local healthcare providers, NGOs, and community organizations to ensure the sustainability of successful interventions.
- **Monitoring and Evaluation:** Develop a plan for continued monitoring and evaluation of community-based interventions beyond the research project, using lessons learned to refine and adapt programs.

8. Knowledge Translation:

- **Plain Language Summaries:** Create plain language summaries of research findings for broader dissemination, particularly targeting communities and non-expert audiences.

- **Visual Materials:** Develop info-graphics, videos, and other visual materials to convey key messages and findings effectively.

7. PROJECT GOVERNANCE

This project governance structure will ensure effective leadership, management, ethical oversight, and stakeholder engagement throughout the research project, promoting transparency, accountability, and successful achievement of the research objectives. We have summarized the composition and roles of the research team members in Table 3.

Table 3

Team member	Role	Responsibilities
Principal Investigator (PI)	The PI will be responsible for the overall leadership and management of the research project. He will provide strategic direction, oversee research activities, and ensure the project goals are met.	Lead the research team and coordinate project activities. Ensure adherence to ethical standards and research protocols. Liaise with funding agencies and stakeholders. Lead the dissemination of research findings.
Project Manager	The project manager will be assisting the PI in the day-to-day project operations, to ensure smooth execution and timely completion of tasks	Manage budget and financial resources. Coordinate data collection and analysis. Oversee logistical and administrative aspects. Monitor project timelines and milestones. Support communication and collaboration within the research team.
Research Team	The research team consists of researchers, data analysts, and fieldworkers responsible for data collection and analysis	Conduct fieldwork, surveys, and interviews. Analyze quantitative and qualitative data. Contribute to research publications and presentations. Implement research protocols and ethical guidelines.
Advisory Committee	The advisory committee comprises experts in maternal and child health, public health, and social sciences, as well as community representatives.	Provide guidance on research design and methodology Review and critique research proposals and protocols. Offer expertise and advice on ethical considerations. Ensure the project remains responsive to community needs.
Community Engagement Committee	The community engagement committee will be facilitating communication between the research team and participating communities.	Establish and maintain relationships with community leaders and stakeholders. Organize community meetings and feedback sessions. Ensure informed consent and ethical conduct within communities. Advocate for community interests throughout the project.
Stakeholder	This team will be managing	Develop and implement a stakeholder engagement plan.

Engagement and Dissemination Team	stakeholder engagement, communication, and dissemination efforts to ensure research findings reach relevant audiences.	Create and disseminate policy briefs, reports, and publications. Organize conferences, seminars, and webinars for knowledge dissemination. Coordinate advocacy campaigns and policy dialogues.
Monitoring and Evaluation (M&E) expert	The M&E expert will monitor project progress and evaluates the impact of community-based interventions.	Develop an M&E framework and indicators. Collect and analyze project data for ongoing assessment. Provide feedback to the project management team for course corrections. Ensure project outcomes align with stated objectives.

8. SUITABILITY OF THE HOST INSTITUTION

UNIMTECH has the Directorate of Research, Innovation and Development under the supervision of Prof. Osman Sankoh, the 3rd leading scientist in Sierra Leone. Prof Sankoh was the Acting Vice Chancellor and Principal of Njala University, the former Vice-Chair of the United Nations Statistical Commission, the former Statistician General of Statistics Sierra Leone and the former Executive Director of the INDEPTH Network based in Accra, Ghana of Health and Demographic Surveillance System (HDSS) sites in 20 countries in Africa, Asia and the Pacific. He is a world leader in research and research coordination. The Directorate is led by Dr Brima Sesay, a young and committed economist. The Directorate is manned by competent lecturers responsible for Research Coordination, Innovation and Development with support staff in Ethics and Logistics. The institution has a Department of Public Health with qualified and experienced lecturers several affiliated with the Ministry of Health. The University itself is one of the few private universities in Sierra Leone but works under the Tertiary Education Commission and collaborates with other public and private universities in the country. UNITECH has developed a research grant with Njala University and continues to pursue research proposals. Hence this proposal fits into the overall design of UNIMTECH's overall research strategy.

9. CAPACITY BUILDING PLAN

The following capacity building strategies are proposed to be implemented: research training, CHW training, research dissemination workshops, community engagement skills, data analysis skills, sustainability workshops, and evaluation and feedback. By implementing this comprehensive capacity building plan, the research project will not only generate valuable findings but also leave a lasting impact by strengthening the skills and knowledge of individuals and organizations involved in maternal and child health in Sierra Leone. This capacity building will contribute to the long-term sustainability of improved healthcare practices and outcomes in the country.

10. MONITORING AND EVALUATION (M&E) STRATEGY

The following M&E strategies are proposed to be implemented: Develop a comprehensive M&E framework that aligns with the research objectives, including clear goals, objectives, and indicators. Implement rigorous data collection processes, including surveys, interviews, and health facility record reviews, to collect quantitative and qualitative data. Implement routine

monitoring of project activities to track progress against timelines and milestones. Conduct formative evaluations to assess the appropriateness and feasibility of community-based interventions before full-scale implementation.

In summary, this proposed M&E strategy will facilitate rigorous and systematic monitoring and evaluation of the research project, allowing for evidence-based decision-making, continuous improvement, and effective dissemination of findings to inform policies and practices related to maternal and child health in Sierra Leone.

11. GENDER, ETHICAL AND SUSTAINABILITY

We will promote gender equity in the selection and deployment of Community Health Workers (CHWs) to ensure that both female and male CHWs are engaged, and that they can effectively serve the needs of all community members. We will also tailor health education programs to address gender-specific health needs, such as maternal care for women and early childhood nutrition for men, while challenging traditional gender norms that may negatively affect maternal and child health. We will ensure that all research participants provide informed and voluntary consent to participate in the study, with clear explanations of the research objectives, procedures, and potential risks and benefits. We will promote community ownership of interventions by involving local communities in the design, implementation, and decision-making processes, which enhances the sustainability of healthcare initiatives. We will invest in building the capacity of local healthcare providers, CHWs, and community leaders to ensure they can continue to deliver maternal and child health services effectively beyond the research project's duration.

12. PROPOSED PROJECT TIMELINE

Project Activities	Year 1				Year 2			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project Initiation and Planning							
Capacity Building and Training							
Implementation of Community-Based Interventions							
Mid-Term Evaluation and Adjustments							
Scaling and Policy Advocacy			...					
End-Line Evaluation, Reporting, and Sustainability Planning							
Stakeholder workshops for research findings dissemination							
Project closure, including financial reconciliation and reporting.							
Development of sustainability and continuation plans							