

TANZANIA

Council on Health
Research for
Development
Gabriela Montorzi
Sylvia de Haan
Carel IJsselmuiden

Tanzania National
Institute for Medical
Research
Leonard Mboera

An assessment of the health research system

A country report of the AHA series

TANZANIA

An assessment of the health research system

A country report of the AHA series

**Council on Health
Research for
Development**
Gabriela Montorzi
Sylvia de Haan
Carel IJsselmuiden

**Tanzania National
Institute for Medical
Research**
Leonard Mboera

Acknowledgements

We are grateful to all our collaborators for contributing in different ways to the successful completion of this study.

Thanks are due to:

- NACCAP for providing the financial support for this study.
- All stakeholders interviewed, for their availability and valuable contribution to the understanding of the Tanzania Health Research System.
- Donor agency headquarters for validating financial data and contributing with financial information.

Keywords

Alignment and harmonisation, national health research systems, Tanzania, Canada, Denmark, Ireland, The Netherlands, Norway, Sweden, Switzerland, United Kingdom, Paris declaration on aid effectiveness, research financing

ISBN

92-9226-034-0

Copyright and Fair Use

The Council on Health Research for Development (COHRED) holds the copyright to its publications and web pages but encourages duplication and dissemination of these materials for non-commercial purposes. Proper citation is requested and modification of these materials is prohibited. Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee and without a formal request provided that copies are not made or distributed for profit or commercial purposes and that copies bear this notice and full citation on the first page. Copyright for components of publications that are not owned by COHRED must be honored and permission pursued with the owner of the information. To copy otherwise, to republish, to post on servers, or to redistribute to lists, requires prior specific permission from COHRED.

COHRED is interested in tracking the use and effectiveness of its published information, and receiving feedback from readers. Readers interested in providing input or interacting with COHRED on its published materials please contact cohred@cohred.org

Table of contents

| | |
|--|-----------|
| List of abbreviations | 5 |
| Executive summary | 7 |
| Study purpose and objectives | 9 |
| Introduction | 10 |
| Methods | 12 |
| Data collection | 12 |
| Study limitations | 12 |
| National health research system in Tanzania | 13 |
| NHRS governance and management | 13 |
| Health research legislation and policies | 13 |
| National health research priorities | 15 |
| Health research coordination | 16 |
| Coordinating and regulatory bodies | 16 |
| Coordination and clearance of health research in Tanzania | 21 |
| Coordination and clearance of health research in Zanzibar | 25 |
| Health research financing | 25 |
| Alignment and harmonisation in development aid, the health and health research sector | 25 |
| Modalities for delivering development aid | 28 |
| National public health research financing | 29 |
| External public and private health research financing | 30 |
| Health research capacity | 32 |
| An approach to research capacity building | 32 |
| Health research capacity building in Tanzania | 32 |
| Factors influencing research capacity building | 36 |
| Health research institutions | 36 |
| Health research centres | 36 |
| National Institute for Medical Research (NIMR) | 36 |
| Tanzania Food and Nutrition Centre (TFNC) | 36 |
| Ifakara Health Institute (IHI) | 38 |
| Tropical Pesticides and Research Institute (TPRI) | 39 |
| Main public academic institutions involved in health research | 40 |
| Muhimbili University of Health and Allied Sciences (MUHAS) | 40 |
| Sokoine University of Agriculture (SUA) | 40 |
| Main private academic institutions involved in health research | 41 |
| Hubert Kairuki Memorial University (HKMU) | 41 |
| Kilimanjaro Christian Medical College of Tumaini University (KCMC) | 41 |
| Weill Bugando University College of Health Sciences (WBUCHS) | 41 |

| | |
|---|-----------|
| Organised civil society in health research | 42 |
| Ifakara Health Institute (IHI) | 42 |
| Medical Association of Tanzania (MAT) | 42 |
| Policy Forum (PF) | 43 |
| Research on Poverty Alleviation (REPOA) | 43 |
| Tanzania Public Health Association (TPHA) | 44 |
| Regional organisations and networks | 44 |
| African Medical and Research Foundation (AMREF) | 44 |
| The African Malaria Network Trust (AMANET) | 45 |
| Lake Victoria Research Initiative (VicRes) | 45 |
| Discussion and conclusion | 47 |
| References | 51 |
| | |
| Annex 1: National health research system framework | 54 |
| Annex 2: List of stakeholders interviewed | 55 |
| Annex 3: List of health priority problems for research | 56 |
| Summary of priority research areas | 56 |
| Priorities in biomedical research | 56 |
| Priorities in health systems research | 57 |
| Annex 4: Health research projects cleared in 2007 and 2008 | 60 |
| Annex 5: Tanzania health research external funding | 78 |
| Donor agency support to health research in Tanzania | 78 |
| Funding agency support to health research in Tanzania | 88 |
| Annex 6: National institute for medical research - donor grants received for the period 2005 -2008 | 92 |

List of abbreviations

| | |
|---------|--|
| AfDB | African Development Bank |
| AMANET | The African Malaria Network Trust |
| AMREF | African Medical and Research Foundation |
| AMVTN | African Malaria Vaccine Testing Network |
| COHRED | Council on Health Research for Development |
| COSTECH | Tanzania Commission on Science and Technology |
| CSO | Civil Society Organisation |
| DfID | United Kingdom Department for International Development |
| DMO | District Medical Officer |
| DPG | Development Partners Group |
| EAC | East African Community |
| EUR | Euro |
| GBS | General Budget Support |
| GDP | Gross Domestic Product |
| HIV | Human Immunodeficiency Virus |
| HKMU | Hubert Kairuki Memorial University |
| HRUTF | Tanzania Health Research Users' Trust Fund |
| HSSP | Health Sector Strategic Plan |
| ICT | Information and Communication Technology |
| IDA | International Development Association - World Bank |
| IDRC | International Development Research Centre - Canada |
| IHI | Ifakara Health Institute |
| IREC | Institutional Research Ethics Committee |
| IUCEA | Inter-University Council for East Africa |
| JAHSR | Joint Annual Health Sector Review |
| JAST | Joint Assistance Strategy for Tanzania |
| KCMC | Kilimanjaro Christian Medical College of Tumaini University |
| MAT | Medical Association of Tanzania |
| MDG | Millennium Development Goal |
| MMC | Muhimbili Medical Centre |
| MoCS&T | Ministry of Communication, Science and Technology |
| MoH | Ministry of Health and Social Welfare |
| MRCC | Medical Research Coordination Committee |
| MTEF | Medium Term Expenditure Framework |
| MUCHS | Muhimbili University College of Health Sciences |
| MUHAS | Muhimbili University of Health and Allied Sciences |
| NACCAP | Netherlands-African partnership for capacity development and clinical interventions against poverty-related diseases |
| NGO | Non-Governmental Organisation |
| NHRERC | National Health Research Ethics Review Sub-committee |
| NHRS | National Health Research System |
| NIMR | National Institute for Medical Research |
| NORAD | Norwegian Agency for Development Co-operation |
| NSGRP | National Strategy for Growth and Reduction of Poverty |
| OECD | Organisation for Economic Co-operation and Development |

| | |
|------------|---|
| PF | Policy Forum |
| R&D | Research and Development |
| REPOA | Research on Poverty Alleviation |
| RMO | Regional Medical Officer |
| S&T | Science and Technology |
| SDC | Swiss Agency for Development Cooperation |
| SIDA | Swedish International Development Agency |
| Sida/SAREC | Swedish International Development Agency / Secretariat for Research Cooperation |
| SUA | Sokoine University of Agriculture |
| SWAp | Sector Wide Approach |
| TANHER | Tanzania National Health Research Forum |
| TAS | Tanzania Assistance Strategy |
| TB | Tuberculosis |
| TFDA | Tanzania Food and Drugs Authority |
| TFNC | Tanzania Food and Nutrition Centre |
| TPHA | Tanzania Public Health Association |
| TPRI | Tropical Pesticides and Research Institute |
| TZS | Tanzania Shillings |
| UN | United Nations |
| USAID | United States Agency for International Development |
| USD | United States Dollars |
| VicRes | Lake Victoria Research Initiative |
| WBUCHS | Weill Bugando University College of Health Sciences |
| ZHRTF | Zanzibar Health Research Task Force |

Executive summary

The aim of the present study is to contribute to reflecting on best strategies to strengthen the Tanzanian health research system, by providing an overview of the current health research system in terms of health research governance and management, health research financing, and health research capacity. Specific attention is given to alignment and harmonisation as one strategy that has the potential to contribute to health research strengthening.

Methodology

The present study was performed through Internet searches, document reviews, and personal interviews with key stakeholders from government, research institutions, civil society and donor agencies. The research was conducted from September 2008 to April 2009.

Results and conclusions

NHRS governance and management

- Tanzania has a well developed health research system, with a large variety of institutions at governmental, academic and civil society level, as well as substantial human and financial resources that can be put to use to strengthen health research in the country.
- Tanzania has a health research agenda; a national S&T policy that also guides health research; and the basic research governance structures, including a well developed ethical review system.

Health research financing

- The political support for research is given from the highest level, with President Jakaya Kikwete announcing in 2009 an increase of public research funding, from 0.3% to 1% of GDP, starting from the next financial year (2009/2010).
- Tanzania contributes significantly in terms of financial resources to its own research institutions. Nevertheless, it is largely the external resources that are used for research projects and thus have the potential to influence the work and priorities of the research institutions.

Alignment and harmonisation in health research

- In recent years, many aid agencies have shown an enhanced willingness to move forward on aid harmonisation and new aid modalities in Tanzania. A variety of mechanisms for harmonisation and coordination have been set-up in the Tanzanian health sector. The area of health research has not yet received attention within these debates. On the contrary, the alignment and harmonisation in the health sector is said to have had a negative impact on the availability of resources for health research.

Health research capacity

- The Tanzania government has recognised the need for and importance of capacity building as an essential means to achieve development. Priority is to be given to key actors in central and local governments, civil society and private sector for the design, implementation and monitoring of pro-poor policies and strategies. In line with the national strategy for capacity building, several key national institutions involved in health research have developed a strategic approach to capacity building.

Challenges

The Tanzanian research context provides a good opportunity to target outstanding challenges, and make research more effective in addressing public health problems and in contributing to development in Tanzania. This study identified four key remaining challenges:

- Further strengthening national health research governance, especially to ensure good interaction between the three ministries involved in the governance of health research.
- Enhancing financial stability for health research.
- Improving access to essential information to manage research in the country.
- Including health research in alignment and harmonisation processes.

Next steps

The Tanzania Commission on Science and Technology (COSTECH) has initiated the development of a research management information system for S&T, including health research. COSTECH intends to involve national research partners, as well as donor and funding agencies in the development process of such a system.

Study purpose and objectives

The purpose of this study is to improve the understanding of the Tanzania national health research system and identify strategies that can strengthen the system. Special attention is paid to one potential strategy: the alignment and harmonisation of donor support to health research in the country. The study specifically looks into this issue and tries to understand the opportunities and challenges of alignment and harmonisation for health research in Tanzania.

The primary objective of the present study is to assess the Tanzania national health research system through the examination of the health research system architecture, health research policies, health research priorities, health research capacity and financing mechanisms for health research.

This work is the continuation of a study performed by COHRED on alignment and harmonisation in health research in 5 African countries [1].

Introduction

The ultimate objective of health research is an improvement of population health, increased equity in health, and the use of research to work toward sustainable socio-economic development. The strengthening of national health research systems (NHRS) is essential for creating an environment in which health research can achieve these aims.

COHRED defines NHRS as *"the people and institutions that govern, manage, demand, generate, communicate or use research evidence to promote, restore, improve, or maintain the state of health and development of the population"*.

To provide an assessment of the Tanzania NHRS, this study has followed the COHRED 'Framework for Developing a National Health Research System' (Annex 1). The framework suggests a systematic approach to help in reviewing the complexity of a national health research system and identifying where the deficiencies are and where additional efforts are needed to enhance development.

NHRS development is understood, through the proposed approach, as a process characterised by five developmental stages, each addressing specific needs and suggesting targeted actions.

The **basis** for ensuring the optimal development of national health research systems lies in the political commitment of a country to health research.

A **research conducive environment** is essential for the sustainability of the system. This implies having national health research priorities credibly set and regularly updated; a health research policy framework that provides the legislative and regulatory structure necessary to guide all actors in health research; and governance and management structures that provide vision and leadership, and that increase countries' ability to link short-term research objectives with long-term health and development goals.

Research implementation implies strategically ensuring human and financial resources. Strategies should aim at developing reliable research management processes and stable and predictable research financing mechanisms to respond to country national priorities and capacity needs.

Optimisation of the health research system can happen at various levels with the aim of increasing efficiency or enhancing impact on policy or practice. This study looked specifically at health research ethics review and health research capacity.

Integrating the national system at regional and international level is also a key stage in the development process. Such integration can happen through collaborative arrangements with foreign research institutions, international organisations, research sponsors and research donors.

The aim of the present study is to contribute to reflecting on best strategies to strengthen the Tanzanian health research system, by providing an overview of the current health research system in terms of health research governance and management, health research financing, and health research capacity. Specific attention is given to alignment and harmonisation as one strategy that has the potential to contribute to health research strengthening.

Three of the five principles described in The Paris Declaration on Aid Effectiveness (2005) [2] are used to understand the current alignment and harmonisation practices in health research in Tanzania. These are:

- **Ownership**
assessing the country ownership of health research
- **Alignment**
assessing the alignment of donor and funding agencies to national strategies, institutions and procedures
- **Harmonisation**
assessing the harmonisation among donor and funding agencies with the aim to ensure collective effectiveness

Methods

Data collection

The methodology for data collection consisted of:

1. Personal and telephone interviews.

Interviewees represented the following constituencies in the country:

- Government
- Research Institutions
- NGOs
- Donor and funding agencies

Interviews were designed to:

- Allow interviewees to provide an objective overview of the national health research system, as well as alignment and harmonisation in regard to health research in Tanzania.
- Collect data that would better integrate the diverse perspectives of the different sectors charged with coordinating, undertaking and funding health research in the country.

Interviews were conducted from 10 February to 24 March 2009. Personal interviews took place in Dar es Salaam, Tanzania; and in Basel, Switzerland; telephone interviews were held from COHRED Geneva offices. All interviewees were very cooperative and available.

Fourteen stakeholders were interviewed including one representative from the government (Tanzania Commission for Science and Technology), three representatives from research institutions (National Institute for Medical Research, Tanzania Food and Nutrition Centre, Swiss Tropical Institute), two representatives from NGOs (Ifakara Health Institute, Research on Poverty Alleviation), and eight donor/funding agencies (Irish Aid, NORAD, Netherlands Embassy, SDC, SIDA, USAID, AfDB, World Bank-IDA). Further details are provided in Annex 2 of this report.

2. Desktop review of key documents shared by the stakeholders.

3. Internet searches.

- Internet searches were conducted from September 2008 to April 2009.

Data obtained was validated through triangulation:

- Financial information on donor funding to health research was verified and completed where necessary by donors' country offices and headquarters.
- The country report was circulated among interviewees for revision.

Study limitations

The main limitations of this study are linked to the difficulty in obtaining detailed and comprehensive data on health research financing as well as information on individual and institutional research capacity building activities.

National Health Research System in Tanzania

The United Republic of Tanzania is made up of Mainland Tanzania and Zanzibar. It is located between longitudes 28° E and 37° E and latitudes 1° S and 12° S. It has a total surface of 947,480 km², of which 93.2% constitutes land and the remainder is water bodies. The country is divided into 26 regions and 140 districts. Each district is subdivided into divisions, wards and villages. There are approximately 10,000 towns and villages in the country. The councils (district, town, municipal, and city) are the administrative and implementation structures for public health services.

Zanzibar is a semi-autonomous region within the United Republic of Tanzania. It comprises two main islands, Unguja and Pemba, and a number of sparsely populated islets. Zanzibar has its own government and is directly responsible for all non-union affairs, including health services.

The Tanzanian population is estimated at 38.7 million with an annual growth rate of 2.9% [3]. The overall population density is 38 people per square kilometre. Approximately 20% of the population is made up of <5 years of age and about 4% are pregnant women. The average household size is 4.9 persons. About 65% of the inhabitants are below 25 years of age and those aged 10 - 24 constitute 31%. Of the total population, 23.1% are living in urban areas and 76.9% in rural areas. The maternal mortality ratio is 578 per 100,000 live births. Infant and under five mortality are estimated at 68 and 112 per 1000 live births, respectively. The life expectancy at birth for Tanzanians is on average 51 years [4].

In the last decade Tanzania has initiated a comprehensive programme of national health-sector reforms. In this context some important steps have been taken to strengthen the country's health research system – e.g. the creation of the Tanzania National Health Research Forum in 1998, and the revision of national health research priorities in 1999 and 2005. Tanzania has recognised it has a capacity gap in health research management and leadership. As a result a workshop was organised in January 2000 to provide a venue for discussion of this gap, which led to the initiation of a planning process for capacity development in health research. The country established a research-support system for district-based health and development with a focus on health-research and action coalitions.

NHRS governance and management

Health research legislation and policies

Tanzania's long-term development goals are set out in Vision 2025 [5], with shorter term national goals being articulated in the National Strategy for Growth and Reduction of Poverty, popularly known as MKUKUTA [6]. Health-specific objectives are specified in the National Health Policy [7], the Third Health Sector Strategic Plan [8], and the Primary Health Service Development Strategy [9]. The latest Health Sector Performance Profile Report [10] identifies areas of progress as well as deficiencies that need to be addressed.

There is no specific legislation for health research in Tanzania. However, a National Science and Technology policy is available [11] which also guides the health research sector. In addition, the relevance of health research is recognised in the Tanzania National Health Policy.

The **Tanzanian Development Vision 2025** [5] aims to achieve high quality livelihood for all Tanzanians through strategies which will ensure (i) access to quality primary health care for all; (ii) access to quality reproductive health service for all individuals of appropriate ages; (iii) reduction in infant and maternal mortality rates by three quarters of current levels; (iv) universal access to clean and safe water; (v) life expectancy comparable to the level attained by typical middle-income countries; (vi) food self sufficiency and food security; and (vii) gender equality and empowerment of women in all health parameters.

The **National Strategy for Growth and Reduction of Poverty** [6] is viewed as a vehicle to scale up national ownership of the development process toward the attainment of the national development agenda articulated in the Vision 2025 and subsequent policy initiative. The strategy encourages participatory mechanisms at national and local levels. It seeks to be more inclusive by explicitly taking on board the various contributions of all actors. Efforts have been made to improve the quality and depth of participation through consultation processes.

The **Tanzania National Health Policy** [7] aims to improve the health and well being of all Tanzanian with a focus on those most at risk, and to encourage the health system to be more responsive to the needs of the people. The policy mission is to facilitate the provision of equitable, quality and affordable basic health services, which are gender sensitive and sustainable, delivered for the achievement of improved health status. The National Health Policy has eight objectives. One of the objectives of the policy is to reduce the burden of disease, maternal and infant mortality, and increase life expectancy through the provision of adequate and equitable maternal and child health services; facilitate the promotion of environmental health and sanitation, adequate nutrition, control of communicable and non-communicable diseases and treatment of common conditions. The government aims to ensure the availability of drugs, reagents and medical supplies and infrastructures; as well as to ensure that the health services are available and accessible to all the people in the country. According to the National Health Policy, research is a systematic scientific undertaking aimed at analysing a problem. The Government realises the importance of conducting research and the utilisation of evidence in the improvement of health services.

The Ministry of Health and Social Welfare is currently implementing its **Third Health Sector Strategic Plan (HSSP) 2009–2015** [8]. This plan aims at consolidating existing Health Sector Reforms by retaining the key strategic priorities of the second HSSP, while adding some new priorities identified namely as social welfare, emergency preparedness, and control and maternal, newborn and child health.

The **Health Sector Performance Profile Report** [10] provides an overview of the health sector progress and performance during the last financial year. The report attempts to capture information about government health services as a whole (Councils, Regions, Ministry of Health). Every year a joint review of the health sector is undertaken to assess the health system performance in terms of inputs, process, outcomes and impact [12]. The main review is preceded by a technical review which goes through the important reports and strategies to highlight issues and options to be tabled during the main review meeting [10]. This process is led by the Ministry of Health and Social Welfare and the Prime Minister's Office Regional Administration and Local Government, with close collaboration from other parts of government, development partners, other health sector stakeholders as well as civil society.

The **National Science and Technology Policy** [11] aims to orient the use of science and technology towards the economic, social and political objectives of society. The policy mission is to guide government ministries and parastatal organisations, including universities and other research and training institutions, as well as the private sector and NGOs in the choice, assessment, transfer and adaptation of technologies. Moreover, the policy aims at guiding the development of the national scientific and technological capability and capacity, and clearly define priority areas of research and development with potential of accelerating national development, and increasing competitiveness at the global level. The policy is intended to be implemented through each of the following sectors: food and agriculture; industry; energy; natural resources; environment; health, sanitation and population planning; transport and communication; science and technology education and manpower.

A revised National Science and Technology Policy is currently available in draft format, but still needs to be endorsed by the Cabinet. The overall objectives of the policy are to enhance the well-being of the people, and to work toward economic growth of the country.

National health research priorities

The health research priority setting process is led by the National Institute for Medical Research through the Tanzania National Health Research Forum.

The first Tanzania health research priority setting exercise was held in 1992 with the aim to outline the country's main health research priorities. The then proposed research priorities were never approved and endorsed as national priorities. One of the deficiencies of this exercise was that the participation was not broad based, focusing mainly on health research institutions and allied health academic institutions. There was little or no involvement of the community or the private sector. Furthermore, there was no systematic follow-up on the recommendations to ensure their implementation.

The second priority setting exercise was held in 1999, bringing together 40 members from government institutions, research institutions, academia, faith based organisations, NGOs, media and traditional healers. Data for priority setting was obtained from 45 of the 113 districts of Tanzania. The data was collected using self-administered questionnaires. The questionnaires were sent out to all the District Medical Officers and although only 40% returned the completed questionnaires, they were considered to be an adequate representation of the Tanzanian situation. Once the criteria for defining the priorities were developed, the participants of the priority setting workshop were divided into three working groups of about 15 people. The groups worked separately using the district derived data to define the priority health problems in terms of diseases, health systems and social cultural aspects. Once each group had completed the work, consensus on the priorities was obtained through plenary presentations, discussions and finally ranking. The exercise was followed by defining health research priorities under each identified priority problem. This was done freely through group work followed by consensus obtained in plenary discussions and ranking, to arrive to a single priority list.

The third and most recent priority setting exercise was held in 2005, and developed through an intensive and iterative process that involved a broad range of key stakeholders in health research in Tanzania. The current list of health research priorities came to operation in February 2006. The process involved consultations with a number of stakeholders including district and regional health managers, national Ministry of Health, NGOs, faith-based organisations, international partners and donors. The stakeholders' consultation was aimed at reviewing the process and products of the priority areas selected in 1999. It also made reference to the 2005 Health Sector Review, the National

Strategy for Growth and Reduction of Poverty, the preliminary findings of the Demographic Health Survey of 2004/5, and the Health Sector Strategic Plan of 2003-2008. In setting health research priorities, four criteria were used: 1) magnitude of the problem; 2) national policy commitments - this included areas highlighted in the Millennium Development Goals and national strategies on poverty reduction; 3) the Health Sector Strategic Plan relevance, i.e. the areas of health research which are relevant to solving problems and achieving health impact; 4) urgency, i.e. health research issues which are highly time sensitive. The consultation concluded with the definition of two categories of health research: biomedical research and health systems research. A detailed overview of current Tanzanian health research priorities is provided in Annex 3 [13].

Although an official decision has not yet been taken on the date of the next priority setting exercise, interviewees have indicated the interest to review existing health research priorities in 2010. It is expected that the next exercise will be designed to address some areas of the process still needing improvement, namely increased donors involvement, and enhanced dissemination and use of priorities set.

Health research coordination

Coordinating and regulatory bodies

The Tanzanian health research architecture is supported by three main foundations, namely the Ministry of Health and Social Welfare (MoH); the Ministry of Communication, Science and Technology (MoCS&T); and the Ministry of Education and Vocational Training. The National Institute for Medical Research, operating under the MoH, and the Tanzania Commission for Science and Technology, operating under the MoCS&T are the key bodies responsible for the coordination of health research in the country. Figure 1 illustrates the principal actors involved in health research in the country and some of the relationships that exist between these actors.

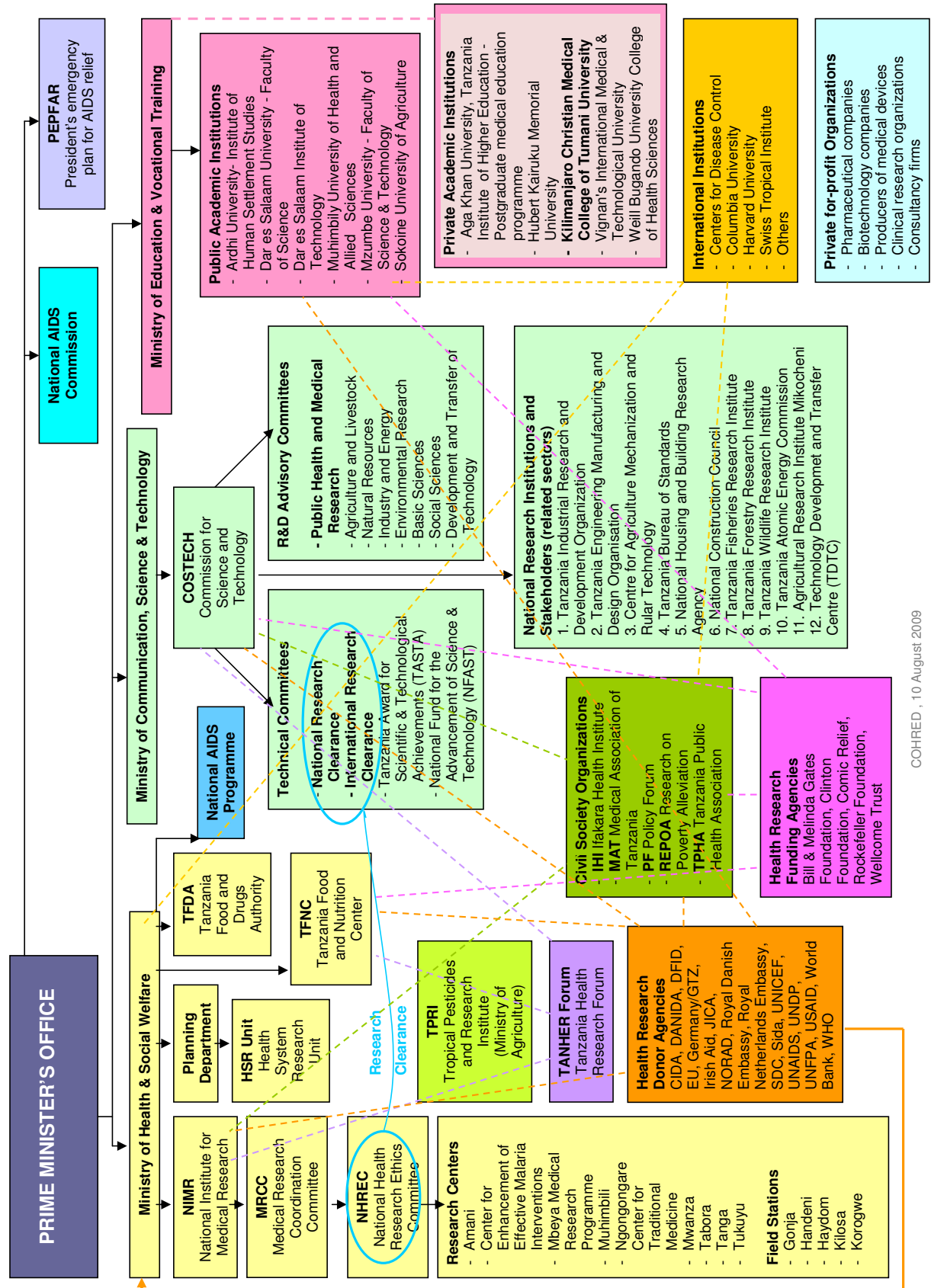
Tanzania Commission for Science and Technology (COSTECH)¹

COSTECH is the principal advisory organ to the Tanzanian Government on all matters relating to innovation, scientific research and technology development. It was established by an Act of Parliament of the United Republic of Tanzania on 17th April 1986 as a public institution with the following functions:

1. To formulate policy on the development of science and technology and recommend its implementation by the Government;
2. to monitor and co-ordinate the activities relating to scientific research and technology development of all persons or body of persons concerned with such activities;
3. to acquire, store and disseminate scientific and technology information, and for that purpose hold or sponsor conferences, symposia, meetings, seminars or workshops, or publish any newspaper, journal or periodical or do any other act or thing designed to promote interest in science and technology development;
4. to advise the Government on priorities in scientific research; the allocation and utilisation of research funds according to priorities; regional and international co-operation in scientific research and transfer of technology; matters relating to the training and recruitment of research personnel; instruction on scientific subjects in educational institutions within the United Republic; the initiation, formulation, and implementation of research policies and programmes; the establishment and maintenance of national scientific standards; science and technology policy.

1 Commission on Science and Technology Website: www.costech.or.tz

Figure 1: Tanzania Health Research Architecture



COHRED , 10 August 2009

After acceptance by the Government of any advice given to it by the Commission:

5. To consult, coordinate and supervise the determination, planning and allocation of funds by national research institutions to research projects and programmes within their respective fields of research; to examine the research and development programmes of national research institutions, whether or not affiliated to the commission, and advise on the best ways of achieving the objectives of those researches;
6. to evaluate existing and proposed policies and the activities of the Government directed at the development of science and technology;
7. to promote the carrying out of research in the area of science and technology;
8. to mobilise funds for support and promotion of scientific research and technological development from both the Government and other sources;
9. to popularise science and technology at all levels including the general public;
10. to foster co-operation in all matters relating to science and technology at regional and international levels;
11. to advise the Government on better and more efficient ways of implementing the national science and technology policy;
12. to facilitate the full application of research results for the purposes of the better social and economic development of the United Republic;
13. to carry out independently or in co-operation with any appropriate person, body, agency or institution such surveys and investigations as the Commission may consider necessary for the proper performance of its functions;
14. to perform such other functions as the Minister may assign to the Commission, or as are incidental or conducive to the exercise by the Commission of all or any of the preceding functions.

COSTECH is a parastatal organisation under the Ministry of Communication, Science and Technology. All major national research and development institutions are affiliated to COSTECH. Representatives from the affiliated institutions serve on the board of COSTECH, commonly known as 'the Commission'. Members of the Commission include Chief Executive Officers from national universities and policy makers from ministries of both Union and Zanzibar Governments.

The organisational structure of COSTECH is based on three main arms, namely the Commission which is the governing authority, research and development sectoral based advisory committees, and the Secretariat. As the governing authority of COSTECH, the Commission gives broad directives and guidelines to the Secretariat and its various committees.

The commissioners are triennially appointed by the Minister of the parent Ministry. The Chairperson of the Commission is a presidential appointee. Part of the Commission membership constitutes an Executive Committee to which the Commission can delegate any of its functions. The Commission is composed by members representing all sectors of the economy (agriculture and livestock, public health, forestry, fisheries, marine sciences, minerals, industry, wildlife); deans / directors of faculties / institutes that deal with research activities; and representatives from ministries that directly affect research activities in the country.

Internally, the Commission has established standing committees known as Research and Development Advisory Committees, which act as the Commission's think tanks on various science and technology issues. There are a total of nine Research and Development advisory committees: Agriculture and Livestock, Natural Resources, Industry and Energy, Public Health and Medical Research, Environmental Research, Basic Sciences, Development and Transfer of Technology and Biotechnology.

The Secretariat is the executive arm responsible for day-to-day operations of the Commission, while the Committees provide technical support on how best to carry out its activities. The Director General heads the Secretariat and operates through the following organs: Centre for the Development and Transfer of Technology, Directorate of Research Coordination and Promotion, Directorate of Information and Documentation, and Directorate of Administration and Finance.

National Institute for Medical Research (NIMR)²

NIMR is the key body that oversees all the regulatory issues of health research in Tanzania. It was established by an Act of the Parliament of the United Republic of Tanzania on the 25th October 1979 as a public institution with the following functions:

1. To carry out and promote the carrying out of medical research designed to alleviate disease among the people of Tanzania;
2. to carry out and promote the carrying out of research into various aspects of local traditional medical practices for the purpose of facilitating the development and application of herbal medicine;
3. to cooperate with the government or any person, or body of persons, in promoting or providing facilities for the training of local personnel for carrying out scientific research into medical problems;
4. to monitor, control and coordinate medical research carried out within Tanzania, or elsewhere on behalf of or for the benefit of the government of Tanzania, and to evaluate the findings of that research; to establish a system of the registration of, and to register the findings of medical research carried out within Tanzania, and promote the practical application of those findings for the purpose of improving or advancing the health and general welfare of the people of Tanzania;
5. to establish and operate systems of documentation and dissemination of information on any aspect of the medical research carried out by or on behalf of the Institute;
6. to control and manage the affairs of centres vested in the Institute by Section 6 (1) of the Act;
7. to assume responsibility for the control and management of any other centre which may be established by the Institute or vested in the Institute under Section 6 (2) or any written law;
8. to do anything which may be necessary to uphold and support the credit of the Institute and its research findings, to obtain and justify public confidence, to avert or minimize any loss to the Institute and to facilitate the proper and efficient performance of its functions.

NIMR is a parastatal organisation under the Ministry of Health and Social Welfare. The legislation establishing NIMR has vested its governance oversight in the Institute's Council which operates through three committees. The committees include the Appointments and Disciplinary Committee, the Finance and Planning Committee, and the Medical Research Coordination Committee (MRCC). The MRCC has a sub-committee known as the National Health Research Ethics Review Committee that oversees ethical issues on submitted health research proposals. The Director General leads the management team composed of Coordinating Directors at the headquarters, and Centre Directors. The coordinating directorates are Finance and Administration, Research Coordination and Promotion, and Information Technology and Communication.

2 National Institute for Medical Research Website: <http://nimr.or.tz/homeweb/>

During its inception, NIMR had five centres, namely Amani, Mwanza, Tabora, Tanga and Muhimbili; and one station, Tukuyu. The centres/stations were founded on disease specific research, mainly malaria, lymphatic filariasis, onchocerciasis, tuberculosis, trypanosomiasis and soil transmitted infections. Today, the Institute has expanded both in scope and geographical span to include broader research disciplines and cover five of the eight zones of the country. Currently the Institute has centres and stations distributed in relation to the prevailing disease burdens. These are Mwanza Centre (Lake Zone); Tabora Centre, (Western); Tanga Centre, Amani Centre, Korogwe and Handeni Field Stations (North-eastern); Haydom and Gonja Field Stations (Northern); Tukuyu Centre (Southern Highlands Zone); Muhimbili Centre and Kilosa Field Station (Eastern). Three new centres are in the process of being officially established. These are the Centre for Enhancement of Effective Malaria Interventions, the Mbeya Medical Research Programme (Southern Highlands) and Ngongongare Centre for Traditional Medicine (Northern).

NIMR's current five year strategic plan [14] intends to stimulate change in areas of staff motivation, development and retention. This will be done through improvement in the scheme of a service incentive package and modification of the organisational structure to improve management and coordination as well as strengthening units with relatively low output, by boosting their resources so as to broaden the span and scope of their research activities. The current strategy further aims at: (i) improving translation, dissemination and utilisation of research findings; and (ii) strengthening the system of protection of intellectual property rights for the Institute's ownership of research findings. NIMR's current five year strategy budget is approximately USD 35 million (TZS 45,700 million), representing an annual average budget of USD 7 million. Annex 6 provides information on donor support received by the Institute for the years 2005 to 2008.

Since its inception in 1979 NIMR has evolved from a disease specific approach to research to the current wider mandate that includes all health research at the local, regional, zonal and national levels. The Institute has been growing in terms of size and scope to keep abreast of the ever changing environment. The current major research areas include malaria, health systems, sexually transmitted infections, helminthiasis, trypanosomiasis and tuberculosis. Others include non-communicable diseases and traditional medicine. Research carried by the Institute is guided by the National Health Research Priorities.

Tanzania National Health Research Forum (TANHER Forum)³

The TANHER Forum is a non-political, non-religious, voluntary body corporate of partner institutions in health research. Its functions are based on the Essential National Health Research Strategy that ensures that evidence-based information is utilised correctly in the policy and decision making process. The Forum is a consultative and advisory body to policy and decision makers with regards to health research coordination, undertaking, collaboration, dissemination and decision making. It was officially launched by the Minister of Health in February 26th 1999 with the aim to perform the following core functions:

1. To promote and support health research in Tanzania;
2. to identify, update and promote essential national health research priorities;
3. to develop and update guidelines for the conduct of scientifically and ethically sound health research in Tanzania;
4. to promote and enhance the use of health research results for decision-making in policy planning and development;
5. to initiate and maintain consultation with development partners and other external stakeholders for the purpose of furthering the objectives of the Forum;

3 Tanzania National Health Research Forum Website: <http://tanherforum.org/index.html>

6. to facilitate and coordinate the strategic dissemination of health research results;
7. to promote capacity building for enhanced quality of health research and utilisation of results to inform relevant national and institutional policies;
8. to assist member institutions with the mobilisation of resources for health research;
9. to coordinate and promote institutional collaboration for an effective and efficient use of health research resources and to oversee/monitor health research processes and ethics.

The TANHER Forum present strategic plan [15] has been designed over a five year period, with the aim to enhance the Forum's capacity in carrying out its core mission and activities, as well as to become an effective national health research coordinator/manager. The strategic plan is focused on enhancing the Forum's ability to respond effectively to its local and external environments; optimising the use of existing physical and human resources; and building effective networks and partnerships with key stakeholders.

Tanzania Food and Drugs Authority (TFDA)⁴

TFDA is a regulatory body responsible for controlling the quality, safety and effectiveness of food, drugs, herbal drugs, cosmetics and medical devices. It was established by Act No 1 of 1st July 2003 with the function of registering all drugs which comply with the rules of the Act.

TFDA is a semi-autonomous body under the Ministry of Health and Social Welfare. Its mission is to protect the health of consumers against hazards associated with food, drugs, herbal drugs, cosmetics and medical devices through the performance of the following core activities:

- Product evaluation and registration;
- premise registration and licensing;
- inspection and surveillance;
- import and export control;
- post marketing product risk analysis;
- laboratory analysis for quality, safety and effectiveness;
- product promotion control;
- public education.

TFDA is empowered by Act 1, 2003 to grant authorisation for the conduction of clinical trials of drugs, herbal drugs and medical devices upon submission and examination of an application requiring the payment of a prescribed fee, the presentation of an ethical clearance certificate issued by any approved institute for medical research, and any relevant information as provided under the guidelines for registration of drugs for clinical trials.

Coordination and clearance of health research in Tanzania

Research licensing

The Tanzania Commission for Science and Technology (COSTECH) is the government organ in charge of research licensing, as stated by Government Circular MPEC/B/10/1 of 4th May 1980, issued by the Ministry of Planning and Economic Affairs. In this regard, research is defined as all activities that involve the gathering of information that enables one to have an understanding of phenomena.

4 Tanzania Food and Drugs Authority Website: <http://www.tfda.or.tz/>

All individuals and institutions who wish to carry out research on the mainland of Tanzania need to seek research licensing from COSTECH – research licensing in Zanzibar is granted through the office of the Zanzibar Chief Minister. Research licensing is expected to apply for all foreign researchers; all Tanzanians studying abroad and in need of doing research in the country; all Tanzanians, except students, from institutions of higher learning and from affiliated research institutions or government ministries who are required to do research as part of their duties.

Applicants for research licenses are required to submit an application form together with the research proposal, and a non-refundable fee of USD 50 per project, two months before commencement of research. Licenses are given for a period of one year and can be renewed for a similar period provided satisfactory progress reports for the previous periods are received by COSTECH. Non-citizens of the United Republic of Tanzania are requested to pay a fee of USD 300 per person upon collection of their research license. Foreign researchers need to have obtained a research license to be able to apply for class C residence permit, granted by the Immigration Department.

After the granting of a research license, COSTECH assigns a local advisor to assist the researcher, and requests other institutions to give the researcher all necessary assistance. The researcher is expected to provide reports to COSTECH on progress made after three months and to submit to COSTECH the final report (dissertation or thesis) derived from the research undertaken in Tanzania, together with any other publication based on the research done in the country.

Scientific and ethical clearance

The Medical Research Coordinating Committee (MRCC), is the national regulatory and coordinating body responsible for review and evaluation of the technical and ethical aspects of research proposals involving human subjects at national level.

The MRCC is one of the Council Committees of the National Institute for Medical Research (NIMR). The Director General of NIMR is the Chairperson of the committee. Other members include the Director General of COSTECH; representatives of the MoH, the Director of Preventive Services, and the Head of the Health Systems Research Unit; the President of the Medical Association of Tanzania; a representative of the Muhimbili University of Health and Allied Sciences (MUHAS); and a representative of the University of Dar es Salaam.

The committee meets quarterly. Its functions include approving research proposals to be carried out in Tanzania; monitoring health research projects carried out in the country; monitoring the adherence by researchers to standard operating procedures; approving material transfer of research samples. Guidelines and Standard Operating Procedures have been developed for use by investigators and reviewers.

The day-to-day activities of the MRCC are carried out by the National Health Research Ethics Review Sub-Committee (NHRERC). The NHRERC is responsible for ensuring that biomedical research proposals are reviewed to safe guard the dignity, rights, safety and well being of research participants.

The NHRERC is composed of members representing NIMR, COSTECH, MUHAS, Christian Social Services Commission, The Muslim Council of Tanzania, Economic and Social Research Foundation, Tanzania Gender Networking Programme, Legal and Human Rights Centre, University of Dar es Salaam, the MoH and Ministry of Education and Vocational Training. NHRERC provides access to ethics training for committee members. Committee members and reviewers receive an allowance for their participation in scientific and ethics clearance.

Institutions carrying out or hosting health research are encouraged to have review committees to safeguard the image of the institution by ascertaining the quality of the research output. NHRERC accredits Tanzanian Institutional Research Ethics Committees (IRECs). To date, most institutions that are engaged in health research have established IRECs. These have similar roles as those of the NHRERC, but operate within the institutional boundaries. The IRECs are appointed by designated appointing authorities in the respective institutions and the size of the committees varies significantly. Most of the IRECs are faced by a number of constraints including lack of funds, training, competence, independent practice, clear job description and legal backing.

The Tanzania National Health Research Forum (TANHER) offers a platform that brings together various institutions dealing with issues of health research and development in the country. TANHER has an ethics committee which discusses and provides guidelines for ethical and scientific review of scientific proposals. The Forum has published Guidelines on Ethics for Health Research in Tanzania [16]. The MRCC works in collaboration with the National Health Research Ethics Committee to ensure a more participatory process in ethics clearance.

Clearance certificates are issued and signed by the Chairman of MRCC and the Chief Medical Officer of the Ministry of Health and Social Welfare. The whole process of receiving, reviewing and approving the proposals ideally takes 4-6 weeks, depending on the responses from the reviewers and the Principal Investigator. In practice, the process may take longer depending on the available review capacity. The MRCC conducts research monitoring by involving district and regional authorities. Copies of certificates for cleared research proposals are sent to respective District and Regional Medical Officers where research is intended to be carried out.

While carrying out the research, the principal investigators are required to observe and strictly adhere to the approved protocol. The principal investigator is also required to provide progress reports every six months. It is compulsory for the principal investigator to submit the final report to NIMR, the MoH and the respective Regional and District Medical Officers of the study sites. To publish the findings, the principal investigator will have to seek permission from NIMR. Copies of the final publications are made available to NIMR and the Ministry of Health. Any researcher who contravenes or fails to comply with these conditions, is guilty of an offence and shall be liable, on conviction, to a fine.

Figure 2 provides a graphic interpretation of the process currently in place in Tanzania for obtaining the permission to carry out research in the country.

The main motivation for researchers to ask for clearance is the fact that publishing in peer reviewed journals is difficult (if not impossible) without clearance. The main hindering factor is the time needed (between 3 to 6 months, due to lack of capacity within the review committee, though training is now provided for committee members).

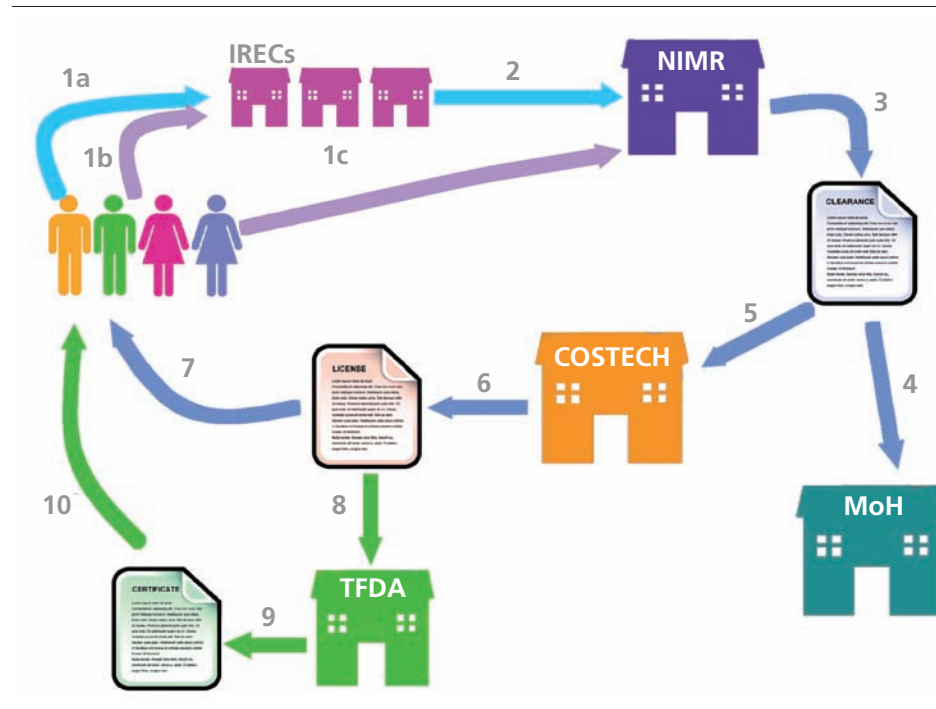
In 2007 and 2008 a total of 181 research projects were going through the ethical clearance process. Figure 3 shows the distribution of cleared research projects for 2007-2008 as per research areas. A detailed list of research projects cleared during the above mentioned period is provided in Annex 4 of this document.

Despite the clearance mechanisms in place there are still researchers that carry out research in Tanzania without clearance. Specific examples of this are international NGOs that often do not describe their work as research, but just as some data collection needed to inform their programs.

NIMR is currently working with District Medical Officers (DMOs) and Regional Medical Officers (RMOs) to help monitor and report better on research projects being carried out in the country. The DMOs and RMOs receive training in research and research ethics. This

Figure 2: Research licensing and clearance process

Tanzania's local IRECs review protocols from Tanzanian researchers (1a) before being submitted to NIMR for clearance (2). IRECs may also review research proposals involving foreign researchers or collaborators (1b). Proposals submitted by foreign researchers may be directly reviewed by NIMR (1c). Scientific and ethical clearance is granted by NHRERC, the operating subcommittee of MRCC which is NIMR's medical research coordinating committee. Once MRCC/NHRERC judges the research to be scientifically and ethically sound, it grants a certificate (3). Copies are sent to the Chief Medical Officer of the Ministry of Health and Social Welfare (4) and to the Director General of COSTECH (5). COSTECH is charged with separately granting research licenses to national and foreign investigators, for what a scientific and research clearance certificate is required (6 -7). Clinical trials must be registered with the Tanzania Food and Drug Authority. For a clinical trial certificate to be issued, the research proposal must have obtained an ethical clearance certificate issued by any approved institute for medical research and a research permit issued by COSTECH (8-10) [17] [16] [18].

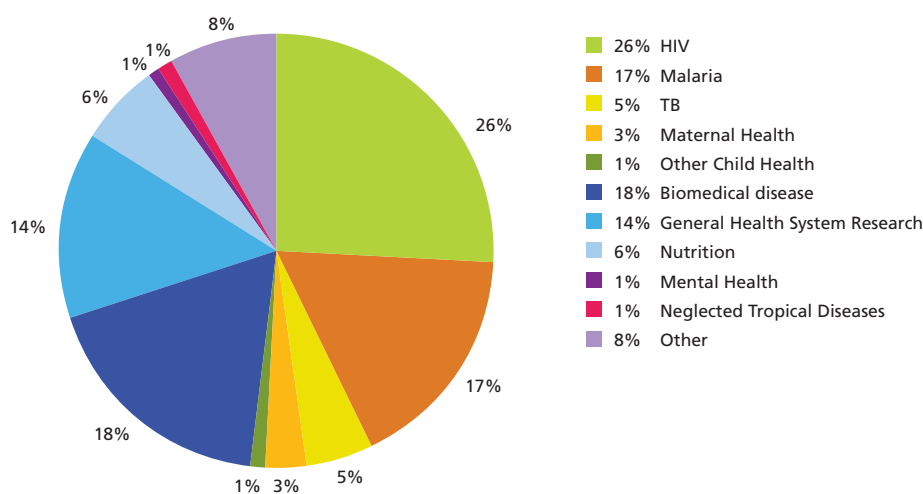


system of collaboration between NIMR , DMOs and RMOS has proven fruitful and has contributed to the detection of a substantive number of non cleared projects.

Currently NIMR does not provide an oversight function once the research is approved, mainly due to lack of resources. However, the Institute is in the process of establishing a 'grants and management unit' that would deal with all external grants and would facilitate the reporting.

Although progress and final reports and outputs of the cleared research should be submitted to the relevant bodies, interviewees indicated that in practice this requirement is not fulfilled. There is thus no overview of the outcomes and outputs of research in the country, nor is there a clear indication of how research results have been used to influence health policy and practice.

There are therefore some weaknesses in the clearance process that need to be addressed. Areas to improve would be to systematically include the alignment of the research project to national health research priorities as criteria in the review process; to provide specific training to reviewers; to establish an online review process leading to an improved oversight; and to enhance the use of research outputs in the development of health policy and practice.

Figure 3: Distribution of cleared research projects (2007-2008) per research area

Coordination and clearance of health research in Zanzibar

In Zanzibar, health research is coordinated by the Zanzibar Health Research Task Force (ZHRTF) which is under the Ministry of Health and Social Welfare. The Task Force was formed in 2004 after the cessation of the then Zanzibar Health Research Council.

ZHRTF is composed by seven members, most of whom are medical doctors and government employees, and it does not have sub-committees.

Each approved health research proposal is issued a certificate of clearance. The certificate is signed by the Secretary and countersigned by the Chairperson of the Task Force. Once granted approval, the investigators are required to submit final reports of their projects to the Task Force. No interim/progress report is required.

Although the ZHRTF exists within the Ministry of Health and Social Welfare, there is lack of awareness of the composition of its members and its functions among research stakeholders including policy makers. There is also lack of Local Ethics Review sub-committees. ZHRTF lacks a permanent legally established Research Coordination Committee. This hampers the smooth coordination of health research [19].

Despite of an existing wide range of research areas, there are few health research projects conducted in Zanzibar, most of which are for academic purposes. This is mainly due to lack of funding and low motivation among scientists in Zanzibar.

Health research financing

Alignment and harmonisation in development aid, the health and health research sector

Tanzania has been carrying out aid management reforms as part of the broader economic reforms since the 1990s. These reforms have been part of its efforts to make aid more effective for achieving development and poverty reduction and supportive of country systems and processes. In January 1997, the Government and its development partners adopted the recommendations of the Report of the Group of Independent Advisors [20], who were commissioned in 1994, to evaluate and propose ways to improve development co-operation in Tanzania. The group had recommended that the Government formulates clear medium to long-term national development priorities and undertakes necessary

reforms in public service and financial management. Development partners had been urged to take actions to better coordinate and harmonise their development assistance including practices and procedures as well as increase the predictability of aid flows [21].

The adoption of the Report's recommendations set in motion a process of redefining the relationship between the Government and its development partners, and the management of aid on the basis of principles of national ownership, government leadership, harmonisation and alignment. One major outcome of the process was the establishment of the Tanzania Assistance Strategy (TAS), which was launched in 2002 [21].

TAS is a coherent national development framework for managing external resources to achieve the development strategies as stated in the Vision 2025 and in the National Strategy for Growth and Reduction of Poverty (NSGRP). It seeks to promote good governance, transparency, accountability, capacity building and effectiveness of aid. An action plan was developed in 2003 setting out practical steps for implementing TAS. Actions were grouped in four priority areas, namely increasing the predictability of aid flows, integrating external resources into the Government budget, harmonising and rationalising policy processes, and improving national capacities for aid coordination and external resource management [21].

In recent years, many aid agencies have shown an enhanced willingness to move forward on aid harmonisation and new aid modalities in Tanzania. Some underlying factors supporting this trend are the political stability of the country, the increased economic growth and the increased confidence in the Tanzanian commitment to public sector reforms. There is also agreement between most donors and the Government that NSGRP and TAS should be the main basis for co-operation [22].

Another important contributing factor to the improved aid harmonisation and alignment has been that many of the local offices of the key aid agencies have been delegated a higher level of responsibility from the headquarters, thus facilitating a more flexible and rapid interaction with the Government and among themselves. Experience from Tanzania shows that these processes are time consuming and that smaller countries like Sweden and Norway need to be well staffed to handle the challenge [22].

Mechanisms for harmonisation and coordination in the Tanzanian health sector include Sector Wide Approach (SWAp) technical working group quarterly meetings, joint annual health sector reviews (JAHSR), and development partners group (DPG) monthly meetings.

The SWAp technical working group is chaired by the Chief Medical Officer of the Ministry of Health and Social Welfare. Meetings are held between government and donors, and focus on harmonisation and coordination issues across the sector.

Every year a joint review is undertaken of health sector progress, constraints and future priorities (JAHSR). This process is led by the Ministry of Health and the Prime Minister's Office Regional Administration and Local Government, with close collaboration of other parts of government, development partners, other health sector stakeholders and civil society. The main review is preceded by a technical review, which goes through the important reports and strategies to highlight issues and options to be tabled in the main review meeting.

The DPG was created as an initiative of local development partners to maximise harmonisation. The DPG aims to complement the Government's own coordination efforts by promoting internal coherence among development partners in the context of the Rome [23] and Paris [2] Declarations. In addressing harmonisation, the DPG seeks to increase the effectiveness of development assistance and to reduce transaction costs for the Government [24]. Tanzania is a signatory to the Paris Declaration on Aid Effectiveness, and is committed itself to the principles (ownership, alignment, harmonisation, results and mutual accountability) outlined in the declaration.

DPG is organised in sub-groups divided by sector. Sector groups report to DPG in order to address technical sector issues, and to consider linkages to key processes, use of national systems for programming, financing and review issues, use of joint reviews and joint analytic work, as well as efforts to mainstream all cross-sectoral issues. Zanzibar matters are discussed under one DPG group [24].

The Development Partners Group for Health (DPG Health) is composed of 20 bi-lateral and multi-lateral agencies supporting the health sector in Tanzania. DPG Health has been established to support the Government of Tanzania in improving the health and well being of all Tanzanians and to promote coordination among development partners for the most efficient use of development partners' resources. Specifically, the DPG Health supports the Government of Tanzania in its efforts to achieve the health objectives stated in the NSGRP [6], the National Health Policy [7] and the draft Health Sector Strategic Plan (HSSP III) [8]. These are funded through general budget support, the health basket, projects, technical assistance, and through goods in kind.

DPG Health is organised around terms of reference and a code of conduct agreed between government and development partners. In accordance with the division of labour outlined in the Joint Assistance Strategy for Tanzania (JAST), the DPG Health is coordinated through a troika chairing structure (an incoming, present and outgoing chairing arrangement) that leads the group. Other development partners act as either active or delegating members [25].

DPG Health meets monthly to discuss health sector issues. Health research is not a prominent topic of discussion in this group, but information on studies is shared.

Though several efforts have been made to improve the aid alignment and harmonisation process in the country, the area of health research has not yet received enough attention. There is no specific group of donors for research in Tanzania, nor is there a coordination body for health research among development agencies.

Interviewees described awareness of health research needs and the required expertise in research among local embassy staff as a major challenge. The linkage with embassies' headquarters is sensed as being good, and awareness in headquarters seems present, however health research loses strength at the level of local decision making and priority setting. This might be explained by the fact that local embassy staff respond to the needs identified by the government, where awareness raising for research is still needed. In a context of general budget support and basket funding, the government has the ownership over the health priorities to which resources are to be allocated. Health research thus competes with all other health priorities such as basic health service delivery. It is then not surprising that priority be given to areas other than health research. Donor agency interviewees indicated their interest to support research, provided that the government gives priority to it.

From the perspective of donor representatives interviewed, an important challenge to supporting health research is the lack of transparency of the system. Main obstacles are the lack of clarity in the use of research in policy and practice; difficulty in accessing information on research activities and on how funding is used; weak link between researchers and the public; and little interaction between research institutions.

Corruption has as well been indicated as a challenge to overcome in relation to alignment and harmonisation. Currently, 65% of service positions are unfilled due to low salary offers. The Ministry of Finance and Economic Affairs decided not to use donors' funding for salary increases, as government can not afford to sustain high salaries if donors pull out. A consequence of this is that compensation for low salary income is done through per diems (allowances), leading to sometimes unnecessary attendance of meetings and little time given to technical work.

Modalities for delivering development aid

At the heart of the national development process in Tanzania are the national budget and the National Strategy for Growth and Reduction of Poverty (NSGRP) processes, with the national budget being the primary means for reaching NSGRP objectives. The major processes linked to NSGRP and to the commitments made in the national budget, are the annual Public Expenditure Review and the Medium Term Expenditure Framework – that translates the NSGRP into fundable and implementable activities. The outputs of these processes inform all stakeholders including development partners on the progress achieved and therefore on the resource commitments related to the implementation of the strategies [21].

The Government receives external resources under three modalities, namely General Budget Support (GBS), basket funds, and direct project funds.

GBS is the Government's preferred aid modality. It has been associated with greater ownership, harmonisation, alignment, managing for results, and mutual and domestic accountability. It is thus consistent with TAS and the Paris Declaration. It has shown to increase the proportion of external resources subjected to the national budget process, thereby increasing national ownership of the development process by emphasising the national budget as the framework for identifying priorities and programming resource use [21].

Basket funds have played a big role in financing core public reform programmes and development activities at the sector level. However, some weaknesses have been identified during the implementation process. These have created unnecessary parallel implementation and management systems and structures as well as financing mechanisms, thus adding transaction costs to the Government. In addition, these weaknesses have limited the degree of Government ownership over resource allocation across and within sectors and reforms. The lack of complete and comparable information across sectors and reforms have created difficulties in reducing duplication of activities and maximising complementarities [21].

The direct project funds have also been important in financing development expenditure in the country. Nevertheless, they have demonstrated some disadvantages. The persistent high volume of the off-budget project financing arrangement has provided many Government agencies with continued access to financing channels that largely bypass and therefore undermine the national budget process. The dominance of foreign project financing which continues to predominantly reflect the priorities of development partners has limited and undermined the discretion that is available to the Government to allocate funds in accordance with national priorities. This in turn has prevented the Government from taking full and effective ownership and leadership in managing the development process [21].

In respect to the above outlined advantages of GBS and limitations of other modalities, it has been agreed among development partners to increasingly move to GBS from other modalities and adhere to the criteria of 'good practice' for using basket funds and direct project funds. In the medium term, basket funds are intended to be limited to those contexts where it is seen appropriate by the Government and significant transaction cost savings are possible, particularly in protecting public reforms and thematic areas which are not yet mainstreamed in normal Government activities. Direct project funds to the Government are intended to be utilised for large-scale infrastructure investment, for piloting where particular service delivery innovations or policies need to be tested before being mainstreamed into the normal Government system and machinery, and for emergency aid where quick and localised service delivery is needed [21].

In regard to basket funding of the health sector, the Government and several development partners signed a Memorandum of Understanding (2008 – 2015) specifying the terms of collaboration. These are in line with the second and third health sector strategic plan, the health sector Medium Term Expenditure Framework of the Ministry of Health and Social Welfare, and the Comprehensive Council Health Plan [26].

As mentioned earlier, health research can be supported through the basket funding mechanism, provided the Government gives priority to health research. Interviewees indicated that this is currently a major challenge.

National public health research financing

The national budget allocated to health research comes from the money allocated to the Ministries of Health and Social Welfare (for National Institute for Medical Research and Tanzania Food and Nutrition Centre) and to the Ministry of Education and Vocational Training (for public universities) through the Government's Medium Term Expenditure Framework (MTEF).

The MTEF defines a three-year rolling macroeconomic framework, which outlines the overall resource envelope and forms the basis for national priority setting and expenditure prioritisation. The introduction of the MTEF initiative from the Government aims at providing a broad budgetary strategy within which to prepare the annual budget, link the budget process to Tanzania's poverty reduction strategy [6] and therefore address the problem of poor linkage between planning and budgeting, ensure involvement of stakeholders in the budgeting process, ensure programmes are properly prioritised and budgeted, enhance sustainability and efficiency of the budget, and provide a mechanism through which analysis of budgetary performance can be fed into the budget planning process.

Every year a joint review of the health sector is undertaken to assess the health system performance in terms of inputs, process, outcomes and impact [12]. The main review is preceded by a technical review, which goes through the important reports and strategies to highlight issues and options to be tabled at the main review meeting [10]. This process is led by the Ministry of Health and Social Welfare and the Prime Minister's Office Regional Administration and Local Government, in close collaboration with other parts of government, development partners, other health sector stakeholders and civil society. One of the components of the assessments is the 'implementation status of activities, targets and strategic objectives set out in the MTEF'. This component reviews the resources allocated to different departments and institutions in the Ministry of Health and how they have been used to accomplish the ministerial objectives and targets defined in the MTEF.

In addition to the national budget allocated to health research, the Ministry of Health and Social Welfare through the Tanzania National Health Research Forum established the Tanzania Health Research Users' Trust Fund (HRUTF) in 1999. The main task of the fund has been to support demand driven research in Tanzania. Overall, the fund has supported young scientists by funding health research proposals originating from communities experiencing health problems. The fund solicits demand driven research proposals from its local clients by advertising research priority areas in local newspapers. With the adverts, research proposals are screened according to merits. A health research proposal qualifies for funding after meeting set criteria on its scientific merit, impact of the expected results to the community, feasibility, ethics adherence and cost implications. Between 1999 and 2003 the HRUTF received support from the Swiss Agency for Development and Cooperation. Since 2003, the Fund received approximately USD 50,000 from the Ministry of Health and Social Welfare.

A survey published in 2002 by the Tanzania National Health Research Forum [27] informs on the level of core and research funding going to Tanzania national health research institutions between the years 1991 to 2000. The survey shows that over that decade the government average annual contribution to national health research institutions core funding was of USD 29.5 million.

The health sector is being considered a key factor in economic development, and has been given higher status through Cluster II of the National Strategy for Growth and Poverty Reduction [6]. President Jakaya Kikwete has recently made the public commitment to increase funding for research and development from the current 0.3% of the gross domestic product (GDP) to 1%, starting from the financial year 2009/2010. This new allocation represents an increase of 0.7% of GDP, equivalent to approximately USD 189 million (TZS 248 billion), up from the current annual budgetary funding of USD 57 million (TZS 75 billion) [28].

Specific information on national public funding going to health research is up to present not publicly accessible as there is no centralised information mechanism to make this kind of information available. In addition, there is no budget line for health research in the Medium Term Expenditure Framework or in the Ministry of Health and Social Welfare's budget.

The Tanzania Commission for Science and Technology [29] is currently working on the collection and analysis of public research funding data since 1995 to present. The main source of information for this assessment is the Ministry of Finance and Economic Affairs. As per the type of information available, data can not be disaggregated per research area, but only per sector. One of the preliminary outputs of this work shows that between 1995 and 2004 public funding for research has been mainly and increasingly invested in the health sector (Medical Sciences) (table 1). Interviewees attributed this to the fact that in the health sector (as opposed to other sectors) better proposals are submitted; the health research system has a good review system (which other sectors still lack); there is a higher response to calls for proposals from the health sector (in comparison to other sectors); and health research is the only sector to have a peer reviewed journal published in Tanzania.

Despite the encouraging trends observed until 2004, interviewees from research institutions have indicated that public funding to health research activities has decreased in the last two years. The study did not manage to quantify the decrease, nor does the data in table 1 support this observation made by interviewees. A possible explanation could be a shift of funding to other institutions and programmes.

External public and private health research financing

Information on external public and private funding to health research has proven difficult to access and to compile. The main difficulties lie in the fact that information is scattered, and when provided, it is presented in different ways not always allowing for comparison.

In an attempt to present an overall view of the external funding going to health research in Tanzania we have compiled the data in two simplified tables (tables 2 and 3), with information being drawn from several sources. The sources consulted include public electronic databases (OECD, idris – IDRC, research4development – DfID, Rockefeller Foundation, Bill & Melinda Gates Foundation, Wellcome Trust) and network contacts. The information on donor funding has been verified and completed through donors' country offices and headquarters. Detailed information on external health research financing is made available in Annex 5 of this report.

The list of external funding agencies presented in this study is incomplete as it misses information on other funding mechanisms that contribute to supporting health research in the country. Such mechanisms include multi-lateral agencies and development banks,

Table 1: Tanzania public R&D expenditure (from COSTECH, 2009 [29]) , represented in percentage of total public R&D investment

| R&D sectors | Financial Year | | | | | | | | |
|----------------------------|----------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 95/96 | 96/97 | 97/98 | 98/99 | 99/00 | 00/01 | 01/02 | 02/03 | 03/04 |
| Engineering and Technology | 9.87 | 13.69 | 13.58 | 12.08 | 8.93 | 9.84 | 7.58 | 10.85 | 10.98 |
| Medical Sciences | 74.89 | 71.69 | 61.31 | 77.34 | 78.52 | 76.58 | 70.74 | 74.87 | 76.61 |
| Agricultural Sciences | 13.90 | 13.29 | 23.86 | 9.67 | 11.68 | 12.67 | 21.21 | 14.20 | 12.40 |
| Social Sciences | 1.35 | 1.33 | 1.25 | 0.91 | 0.86 | 0.90 | 0.47 | 0.09 | 0.00 |

Table 2: Donor agency support to health research in Tanzania

| Health Research Donor | Period | Period funding USD millions | Estimated annual funding ⁵ USD millions | Delivery Channel | Area of funding |
|-----------------------------|-------------|--------------------------------|---|---|--|
| Austria | 2006-2007 | 0.057 | 0.028 | Funding through Austrian institutions | Health through agriculture |
| Canada (IDRC) | 2004-2008 | 2.397 | 0.479 | Direct funding to country institutions | Policy development Health insurance Biopharmaceutical innovation Global health research Health through agriculture |
| Denmark | 2007-2008 | 5.300 | 2.650 | Direct funding to Tanzania Government | Non specific |
| European Commission (EDCTP) | 2006-2007 | ? | ? | Direct funding to country institutions | HIV/AIDS Research capacity Malaria Ethics Distance learning |
| Ireland | 2007-2008 | 0.512 | 0.256 | Direct funding to country institutions | Health Information |
| Norway | 2006-2007 | 0.725 | 0.363 | Funding through Norwegian institutions | Health systems research Health promotion Health communication |
| Sweden | 2004-2009 | 7.400 | 1.233 | Direct funding to country institutions | HIV/AIDS Malaria Reproductive health Violence against women Core support to institution |
| Switzerland | 2006-2008 | 1.050 | 0.350 | Direct funding to country institutions | Capacity building |
| United Kingdom (DfID) | 1999 - 2011 | 135.529 | 10.425 | Funding through UK and international institutions | Equity and accountability HIV/AIDS Malaria Policy development |

5 Annual funding has been estimated by dividing 'Period funding' by the number of years of the 'Period' covered by the funding

Global Health Initiatives, as well as international research institutions that engage in collaborative research arrangements with Tanzanian institutions.

Despite these limitations the data illustrates that Tanzania contributes significantly in terms of financial resources to its own research institutions. Nevertheless, research projects are largely funded by external resources, which thus have the potential to influence the work and priorities of the research institutions. In addition, it is difficult to ensure alignment of research resources that remain in intermediary (external) institutions, to national health and health research priorities.

Table 3: Funding agency support to health research in Tanzania

| Health Research Sponsor | Period | Period funding USD millions | Estimated annual funding ⁶ USD millions | Delivery Channel | Area of funding |
|---------------------------------|-----------|--------------------------------|---|---|--|
| Bill & Melinda Gates Foundation | 2006-2008 | 29.676 | 9.892 | Direct funding to country institutions Funding through UK and USA institutions | Malaria Neglected diseases |
| Rockefeller Foundation | 2006-2009 | 1.250 | 0.312 | Funding through external and international institutions | HIV/AIDS Education system Pharmaceutical services Research management |
| Wellcome Trust | 2006-2008 | 1.495 | 0.498 | Direct funding to country institutions Funding through UK and USA institutions | Health management Biomedical resources |

6 Annual funding has been estimated by dividing 'Period funding' by the number of years of the 'Period' covered by the funding

Health research capacity

An approach to research capacity building

COHRED developed a matrix to facilitate the thinking and decision making about health research capacity within a national health research system context (table 4). The cells of the matrix can contain many specific measures or interventions, those listed are examples only.

The matrix identifies a difference between 'capacity building', 'capacity strengthening' and 'performance enhancement' by referring to the level of capacity and development of the national health research system when the intervention starts. It is mainly meant to take explicit note of the fact that in many countries research capacity already exists and needs to be built upon.

The levels of intervention distinguish between individual, institutional, systemic, socio-economic and political, and international. The majority of the traditional research capacity building programmes focus at the individual level. However, to build an effective health research system, high quality institutions are needed for trained individuals to work in, and a research system is needed to provide the guidance, quality assurance mechanisms, and financial resources to facilitate research. Much more is needed in terms of system development to make national research sustainable, relevant, ethical and excellent. Research support and partnerships should aim to support all loci of interventions through multi-pronged approaches.

The current study uses this framework or matrix to review and analyse some of the challenges related to health research capacity strengthening in Tanzania, specifically focusing at the system, institutional and individual levels.

Health research capacity building in Tanzania

System level

The Tanzanian government has recognised the need and importance of capacity building as an essential means to achieve development. This position is made explicit in the National Strategy for Growth and Reduction of Poverty (NSGRP) where capacity building is considered to be imperative for harmonising and achieving greater policy coherence and synergy between NSGRP and other processes. The strategy underscores the need for

Table 4: Health research capacity matrix - with example interventions

| Level of intervention Type of intervention | Individual | Institutional | Systemic Research System | Socio –economic and Political | International Collaboration and Linkage |
|---|-------------------------|------------------------------|--|--|--|
| Capacity building | Master level training | Grants management | Priority setting Strategy development | Increase demand for research | Good partnerships (e.g. Alignment and Harmonization) |
| Capacity strengthening | Doctoral level training | Merit-based promotion system | Research ethics review | Civil society engagement | Fair research contracting |
| Performance enhancement Equity-focus | Researchers networks | Research communication | Monitoring and evaluation of output and impact | Focus on health, equity & socio-economic development | Focus on research competitiveness |

change at multiple levels (mindset, orientation skills, work processes, instruments, procedures, staffing, and institutional set-up) to support cross-sector collaborations in the achievement of shared outcomes. Priority is to be given to key actors in central and local governments, civil society and the private sector for the design, implementation and monitoring of pro-poor policies and strategies. Capacity building of actors at district level is also critical, given the role of local governments in implementation of NSGPR. This is to be addressed through Local Government Reform Programme, poverty monitoring process, as well as other interventions. Training requirements are to be addressed by the government in collaboration with training and research institutions. Examples of actions to undertake are the preparations of sensitisation programmes and enhancement training modules adapted to the specific requirements of different cadres [6].

The Tanzanian health research system has in place the necessary building blocks for providing an inductive environment for health research. Tanzania has a health research agenda, a national S&T policy that also guides health research, and has put in place basic research governance structures. In addition, the political will to invest in research was shown recently by President Kikwete announcing an increase of funding for research and development to 1% of GDP. The ethical review system is well developed, although interviewees mentioned the need to still strengthen ethical review capacity to further improve the review system. One observation concerns the governance across the three ministries involved in health research: it is difficult to assess how the interactions across these ministries happen in day-to-day research management, and to understand whether the current governance system is the most effective and efficient in stimulating health research in the country. A closer review of these interactions would be useful.

Institutional level

In line with the national strategy for capacity building, several key national institutions involved in health research have developed a strategic approach to capacity building – specific activities to support strategic objectives are provided in the respective original strategic documents:

Tanzania National Health Research Forum [15]:

- Use the Forum as a vehicle for accelerating implementation of national development strategies aimed at poverty alleviation and eradication of diseases.
- Advocate for incorporation of health research into NSGPR targets relating to promotion of health status.

- Mobilise participation of and support from key stakeholders (public and private sector organisations and development partners).
- Develop and implement a comprehensive resource mobilisation strategy.
- Review the legal framework, organisational structure and staffing.
- Review / develop operational policies and procedures.

National Institute for Medical Research [14]:

- Strengthening of good governance (transparency, ethics, and regulations).
- Strengthening of financial capacity.
- Expansion and enhancement of internal and external research and training collaboration.
- Strengthening of research coordination, control and promotion.
- Strengthening of research capacity (human resources, infrastructure and equipment).
- Strengthening of information systems management.
- Strengthening of research products commercialisation capacity.
- Establishment and strengthening of capacity to protect intellectual property rights.
- Strengthening of information communication technologies.

Tanzania Food and Nutrition Centre [30]:

- Develop, manage and sustain human resources through the development of training programmes, improved scheme of services and incentive packages.
- Mobilise and manage financial and material resources through improved funding and accounting system.
- Collaborate and network with other institutions and organisations, allowing for awareness, working and review sessions.
- Develop and implement infrastructure plan leading to rehabilitation and expansion of existing building structures, and to setting-up of partnership with real estate developers.

Ifakara Health Institute [31]:

- Promotion of evidence-based policy formulation and translation of research results into public health action: improving dissemination and impact of research, creating the maximum public benefit from the data collected.
- Strengthening institutional capacity for ensuring sustainability: organisational restructuring, improving financial security and sustainability, strengthening financial management function, modernising IT systems.
- Strengthening of human resource capacity through the design and delivery of specialist training courses, in formal partnership with national universities.

Muhimbili University of Health and Allied Sciences [32]:

- Strengthening capacity for leadership and management.
- Strengthening and streamlining of administrative and technical structures.
- Developing and improving staff recruitment and promotion processes.
- Enhancing financial capacity, efficiency and sustainability through resource mobilisation, diversification of funding sources, strengthening of budgeting and accounting systems.
- Developing and maintaining university infrastructure.
- Improving quality in teaching and learning, through continuing education, professional development, improved ICT application, development of new academic programmes.

- Improving research development and management, through increased research funding, strengthened research capacity and management, improved application and dissemination of research findings.
- Enhancing gender balance by strengthening gender unit, implementing gender policy, adhering to national affirmative action for staff recruitment and student admissions, operationalising anti-sexual harassment policy.

Interviewees indicated that it is at times difficult for research institutions to keep their qualified staff. Research institutions often get newly graduated people from university, who are trained in-house for 3 to 5 years, and then subsequently lost to better paying positions in international NGOs or UN offices. There is a need for harmonising employment terms with the possibilities of the country, as international salary scales are not sustainable.

The information above indicates that these institutions view their institutional capacity development needs in a broad and systemic way. The focus from research management, good governance, leadership, financial management, research communication, to the strengthening of individual capacity to conduct the research, illustrates this. The institutional strategy documents also clearly acknowledge the existing capacity in certain areas, and thus speak about strengthening and enhancing this capacity, while in other areas (such as capacity to protect intellectual property rights) the focus is on building the capacity as very little experience currently exists in this area.

A key aspect of enhancing institutional capacity is research communication, ensuring that health research outputs are available to the public, health care professionals and policy makers. A number of institutions have taken concrete steps to enhance their research communication.

The National Institute for Medical Research (NIMR) disseminates general information on health as generated from diverse research conducted in the country through its quarterly published Tanzania Journal of Health Research. The Journal, established in 1997, is available on-line since 2007. In addition, NIMR has since 1982, organised annual scientific conferences which bring together research scientists, policy makers, practitioners, development partners and media both from within and outside Tanzania. Over 524 articles have been published in peer-reviewed journals from January 1980 to April 2009.

The Tanzania Food and Nutrition Centre reaches the community level through health centres. Health research results are communicated by health professionals to patients that assist in the health centres, specifically focusing on adapting nutritional behaviour.

The Ifakara Health Institute makes their results available through peer-reviewed publications; the institute's e-bulletin, policy briefs disseminated through internet and listservs, as well as by participating in technical committees, meetings and groups. Furthermore, the Institute's resource centre is currently developing a virtual library referencing the integrity of the Institute's research data with the aim of making it publicly accessible.

Currently, there is no real collaboration in making sure that research outputs are shared with the Ministry of Health and Social Welfare. The Tanzania National Health Research Forum is working on developing the linkage of research to policy, which seems to be a major weakness in Tanzania, as outputs of research are not properly documented. The annual conferences organised by NIMR usually show low attendance rates of policy makers and programme managers. In 2009, a research communication workshop has been set up to address some of the research to policy challenges. Moreover, NIMR called a meeting in March 2009 with research organisations and ministries in Dar es Salaam and Zanzibar to look at the policy priorities in health and how research can contribute to policies.

The Tanzanian Commission on Science and Technology (COSTECH) is currently putting in place information and dialogue processes to link the production of research more closely to the national development agenda, with the aim to better and more directly inform policy decisions. The strategy calls for COSTECH to have the capacity to acquire, store and disseminate research information and build processes for policy dialogue and synthesis of research information. These processes are intended to operate at a national level, to ensure links and interaction between the research community and policy makers; and between the country's research institutes and COSTECH, to ensure coordination, systematic review and synthesis of research in ways that inform national policies.

Individual level

Data on individual research capacity in Tanzania was difficult to obtain as the information is often not publicly accessible and in some instances not available in a systematised way. Table 5 shows the distribution of research staff in some Tanzanian health research institutions per formal research qualifications and gender.

Factors influencing research capacity building

The Irish-African Partnership for Research Capacity Building is currently performing a study among African and Irish academic institutions on opportunities and constraints in research capacity building. The study is based on a consultation with stakeholders including among others the University of Dar es Salaam. Table 6 and 7 provide a summary of identified enhancing and limiting factors influencing the development of individual and institutional research capacity, as perceived by African stakeholders [33].

Health research institutions

This section of the report provides some further detail on specific health research institutions, their strategies and main areas of work. When available, annual institutional budget figures are provided. Figure 1 illustrates where in the overall Tanzanian health research system these institutions operate. Some institutions play, besides their research conducting function, a key role in the governance of health research in the country. Such institutions have already been described under the NHRS governance and management section of this report.

Health research centres

National Institute for Medical Research (NIMR)⁷

Detailed information on NIMR is provided earlier in this document, under section 'NHRS governance and management'.

Tanzania Food and Nutrition Centre (TFNC)⁸

TFNC is a research and advisory body on matters relating to food and nutrition. It was established by an Act of the Parliament of the United Republic of Tanzania on 21st November 1973 as a public institution with the following functions:

7 National Institute for Medical Research Website : <http://nimr.or.tz/homeweb/>

8 Tanzania Food and Nutrition Centre Website: www.tanzania.go.tz/tnfc.html

Table 5: Research staff in Tanzanian health research institutions

| Name of institution | PhDs | | Masters | | Bachelors | | Other | | Total | | Total |
|---|----------------|----------------|---------|----|-----------|----|-------|----|-------|-----|-------|
| | F ¹ | M ² | F | M | F | M | F | M | F | M | |
| National Institute for Medical Research | 5 | 18 | 21 | 55 | 10 | 29 | 5 | 38 | 41 | 140 | 181 |
| Muhimbili University of Health and Allied Sciences* | 19 | 44 | 20 | 93 | 16 | 17 | 1 | 4 | 56 | 158 | 214 |
| Sokoine University of Agriculture* | 22 | 150 | 13 | 83 | 8 | 9 | 0 | 0 | 43 | 242 | 285 |
| Weill Bugando University College of Health Sciences | 0 | 8 | 0 | 11 | 0 | 7 | 0 | 0 | 0 | 26 | 26 |
| Ifakara Health Institute | | | | | | | | | | | 100 |

1 F=Female

2 M=Male

* Data from 2004/2005

Table 6: Main enhancing and limiting factors influencing individual research capacity building

| Individual research capacity building | |
|---|--|
| Enhancing factors | Limiting factors |
| <ul style="list-style-type: none"> - Tendency to enhance research conducive environments; influenced by the wider demand for research and by the global emphasis on building knowledge economies - Improved structural support to researchers through access to: <ul style="list-style-type: none"> - administrative assistance - information on funding opportunities and short-term research training programmes - post-graduate training at Masters and PhD levels - supervisory positions at Masters and PhD levels - key resources such as library facilities, internet, conference funding opportunities and African publishing avenues - Fostered confidence among young researchers due to an enhanced culture of supportive research and mentorship schemes integrating research and teaching | <ul style="list-style-type: none"> - Individual researchers have to take personal responsibility to look out for research opportunities and exploit them – e.g. networking, utilisation of research experience acquired in other working contexts, exploiting funding opportunities wherever they exist - Lack of time to engage in research due to: <ul style="list-style-type: none"> - heavy teaching loads - meetings - programme management - lack of funding - limited institutional support that prioritises undergraduate training - gender related factors that mainly affect female academics when they start families - difficulties in accessing post-graduate training opportunities - infrastructural constraints - low salaries - lack of targeted funding streams - lack of grant proposal writing skills - training abroad that is sometimes detached from the African realities, specially in the science disciplines |

Source: Barret, E; Nakabugo MG. Irish-African Partnership for Research Capacity Building. An interim report on the findings of the first phase of the IAPRCB stakeholder consultation, draft. 2008.

Table 7: Main enhancing and limiting factors influencing institutional research capacity building

| Institutional research capacity building | |
|--|--|
| Enhancing factors | Limiting factors |
| <ul style="list-style-type: none"> - Funding - Leadership - Support to research | <ul style="list-style-type: none"> - Availability of funding for research projects - Critical mass of researchers with appropriate skills base |

Source: Barret, E; Nakabugo MG. Irish-African Partnership for Research Capacity Building. An interim report on the findings of the first phase of the IAPRCB stakeholder consultation, draft. 2008.

1. To plan and initiate food and nutrition programmes for the benefit of the people of the United Republic;
2. to undertake review and revision of food and nutrition programmes;
3. to provide facilities for training in subjects relating to food and nutrition;
4. to carry out research in matters relating to food and nutrition;
5. to advise the Government, the schools and other public organisations on matters relating to food and nutrition;
6. to stimulate and promote, amongst the people of the United Republic, an awareness of the importance of balanced diet and of dangers of malnutrition;
7. to gain public confidence in the methods suggested by the Centre for the correction or avoidance of malnutrition;
8. in collaboration with the ministry responsible for development planning, to formulate, for incorporation in the national development plans, plans relating to food and nutrition for the benefit of the people of the United Republic;
9. in collaboration with the producers, manufacturers and distributors of articles of food, to ensure proper nutritional value of the food marketed in the United Republic or exported to foreign countries;
10. to make available to the Government and the people of the United Republic its findings on any research carried out by it on matters affecting nutrition;
11. to participate in international conferences, seminars and discussions on matters relating to food or nutrition.

TFNC is a semi-autonomous institution under the Ministry of Health and Social Welfare.

The Institute has its own Managing Director, who is answerable to the Board of TFNC. The Minister of Health appoints the Board members and the Managing Director, while the President of the United Republic of Tanzania appoints the Board Chairperson. The tenure of Board Members is three years.

The vision of the TFNC is to become a centre of excellence which plays a pivotal role in guiding and catalysing actions for the prevention and control of malnutrition in Tanzania. The mission is to provide research, advocacy, education, and training services aimed at the prevention and control of malnutrition in Tanzania.

The TFNC operations are guided by its current five year strategic plan [30]. The strategy has been designed in line with new country development frameworks, namely the National Development Vision 2025, the ongoing public sector reforms, the poverty reduction strategy, and other relevant policies. The strategic plan is focused on enhancing policy development and planning, community nutrition, food science and technology development, nutrition education and training, and institutional development. TFNC's current five year strategy budget is approximately USD 14.4 million (TZS 18,800 million), representing an annual average budget of USD 2.9 million.

Ifakara Health Institute (IHI) ⁹

IHI, known until 2008 as Ifakara Health Research and Development Centre, is a non-profit, district based health research and resource institute.

In 1991, the centre became an affiliate of the National Institute for Medical Research, and in 1996 it was established as an independent Tanzanian Trust. The organisation is governed by a Board of Governors and Trustees. Members are representatives of government, academia and funding organisations. The Institute has six centres across the country each dedicated to a specific research area:

⁹ Ifakara Health Institute Website: www.ihl.or.tz

- Dar es Salaam centre: Health Systems research, administration and collaboration with the Ministry of Health.
- Ifakara centre: Biology / entomology, transmission interventions, clinical trials and clinical interventions, demographic surveillance systems.
- Bagamoyo centre: Clinical trials in malaria, tuberculosis, HIV, vaccines.
- Rufiji centre: Demographic surveillance, health systems work.
- Kigoma centre: Demographic surveillance.
- Mtwara: Maternal demographic health.

IHI has become an important actor in the Tanzania health sector, focusing its work on the improvement of health delivery systems and generation of evidence for health planning and management. Researchers at IHI have made significant contributions to the implementation of health sector reforms, including evidence on the human resource crisis, scaling up of current recommended interventions for malaria, tuberculosis and HIV, and work on health care financing.

The Institute has an elaborate infrastructure that allows surveillance of morbidity and mortality in large populations, pharmaco-vigilance for drugs and vaccines, and surveillance of rare diseases.

The IHI five year current strategic plan [31] has been designed for guiding the Institute's research work as well as for enhancing training, services and institutional development. The strategy focuses on areas such as disease determinants leading to public health problems; interventions against diseases of public health importance; health system interventions for maximum coverage, quality and effectiveness; impact of national and global initiatives in improving population health; strengthening of human resource capacity through training programmes with universities; evidence-based policy formulation and translation of research results into public health action; and strengthening of institutional capacity for ensuring sustainability. IHI's current five years strategy budget is approximately USD 97.3 million (TZS 127,000 million), representing an annual average budget of USD 19.5 million.

Tropical Pesticides and Research Institute (TPRI)

TPRI is a research body under the Ministry of Agriculture, Food Security and Cooperatives. It was established by an Act of the Parliament of the United Republic of Tanzania on 24th October 1979 as a public institution with the following functions:

1. To carry out, and promote the carrying out of research, and to evaluate and disseminate the findings on the fundamental aspects of pesticides application and behaviour in relation to the control of tropic pests by both ground and aerial spraying techniques in the fields of agricultural entomology; plant pathology; bird pests; rodents; tsetse entomology, mosquito entomology; malacology; ticks, pesticides toxicology; chemistry; physics; engineering; botany; environmental pollution; and photographic service;
2. to establish and maintain a National Herbarium to render services to other institutions in the United Republic and to carry out taxonomic research;
3. to establish a Plant Quarantine Station to handle all phytosanitary matters in the United Republic;
4. to carry out other functions within its jurisdiction as may be conferred upon it by or under this Act or any written law.

The Institute shall, for the purpose of ensuring effectiveness of pesticides, use in the production of crops, fibres, livestock and for the protection of public health and safety:

5. supervise and regulate the manufacture, importation, distribution, sale and use of pesticides in the United Republic;
6. administer regulations made under provisions of this Act.

TPRI has a direct impact on public health issues as it can delay the approval of pesticides used for bednet impregnation.

Main public academic institutions involved in health research

Muhimbili University of Health and Allied Sciences (MUHAS)¹⁰

MUHAS is a public university under the Ministry of Education and Vocational Training, established in 2007 by Article 1 of the Charter of Incorporation. It is the successor to the Muhimbili University College of Health Sciences (MUCHS), which was a constituent College of the University of Dar es Salaam.

In 1963 the Ministry of Health established the Dar es Salaam School of Medicine, with the primary aim of training clinical health staff. In 1968, the School of Medicine was upgraded to Faculty of Medicine of the Dar es Salaam University College of the University of East Africa. In 1976 the Faculty of Medicine was incorporated into Muhimbili Hospital to form the Muhimbili Medical Centre (MMC). MUCHS was established by Act of Parliament No 9 of 1991, when the then Faculty of Medicine was upgraded to a College. In 2000 the Government by Act of Parliament disestablished MMC and created two closely linked but autonomous public institutions; namely MUCHS and the Muhimbili National Hospital.

The mission of MUHAS is to provide in Tanzania a high standard place of learning, education and research in health sciences; to prepare students through regular and professional courses in the fields of health and allied health sciences for degrees, diplomas, certificates, and other awards; to act as a focal point for its cultural development and to be a centre for studies, services and research pertaining to the interests of the people of Tanzania.

MUHAS' current five year strategic plan [32] has been designed in line with the national development frameworks, namely the Vision 2025, the National Strategy for Growth and Poverty Reduction, the National Health Policy and the Higher Education Policy. The strategy focuses on enhancing institutional governance and human resource management; enhancing financial capacity, efficiency and sustainability; developing and maintaining university infrastructure; improving quality in teaching learning; improving quality assurance system for the core functions of the university; improving research development and management; expanding student enrolment and ensuring maximum retention; enhancing gender balance among students and staff; enhancing response among students and staff towards HIV and AIDS prevention, treatment and care; and improving students services. MUHAS's current five year strategy budget is approximately USD 129 million (TZS 168,800 million), representing an annual average budget of USD 25.8 million.

Sokoine University of Agriculture (SUA)¹¹

Sokoine University of Agriculture in Morogoro, was established in 1984 by Parliamentary Act No 6 of 2004. The University is under the Ministry of Education and Vocational Training and was created from the former Faculty of Agriculture, Forestry and Veterinary Science of the University of Dar es Salaam.

¹⁰ Muhimbili University of Health and Allied Sciences Website: http://www.muhas.ac.tz/index.php?option=com_frontpage&Itemid=1

¹¹ Sokoine University of Agriculture Website: <http://www.suanet.ac.tz/science/index.html>

SUA is currently composed of four campuses and one constituent college. The campuses are the Main and Solomon Mahlangu Campuses in Morogoro; the Olmotonyi Campus in Arusha; and the Mazumbai Campus in Lushoto. The constituent college is the Moshi University College of Cooperative and Business Studies located in Moshi.

SUA has four faculties and six directorates/institutes, excluding those in the constituent college. They are the Faculties of Agriculture, Forestry and Nature Conservation, Veterinary Medicine, and Science; the Institute of Continuing Education, the Development Studies Institute, and Directorate of Research and Postgraduate Studies. Others are the Computer Centre, Sokoine National Agricultural Library, SUA Centre for Sustainable Rural Development, and SUA Pest Management Centre.

The University offers undergraduate training, leading to the awards of bachelor degrees in Agriculture General, Agronomy, Home Economics and Human Nutrition, Horticulture, Animal Science, Food Science and Technology, Agricultural Engineering, Agricultural Education and Extension, Agricultural Economics and Agribusiness, Aquaculture, Forestry, Wildlife Management, Veterinary Medicine, Biotechnology and Laboratory Sciences, Environmental Sciences & Management and Rural Development. It also offers postgraduate training leading to the award of Master of Science and PhD in the respective fields of Agriculture, Agricultural Economics and Agribusiness, Food Science, Human Nutrition, Forestry, Management of Natural Resources and Sustainable Agriculture, Veterinary Medicine, Preventive Veterinary Medicine and Rural Development.

The University research priorities aim at augmenting the national priorities in agriculture, natural resources, health, nutrition and environment. The Faculties of Veterinary Medicine and Agriculture have been involved in the conduct of health and health-related researches including tuberculosis, brucellosis, diarrhoeal diseases, malaria and malnutrition.

Main private academic institutions involved in health research

Hubert Kairuki Memorial University (HKMU)¹²

HKMU is a fully accredited university recognised by the Government of the United Republic of Tanzania through the Tanzania Commission for Universities. It operates in a single campus located at Regent Estate in Dar es Salaam. The University was established in 1997, and was the first private university to be accredited in Tanzania in June 2000. HKMU is also a Medical University recognised by the World Health Organization.

Kilimanjaro Christian Medical College of Tumaini University (KCMC)¹³

The Kilimanjaro Christian Medical College was started in 1997 as a constituency of the Tumaini University. It is situated within the Kilimanjaro Christian Medical Centre. The College now has 16 schools of allied health sciences. KCMC staff members have produced well over 500 scientific papers and other publications in various health related issues.

Weill Bugando University College of Health Sciences (WBUCHS)

WBUCHS is owned by the Catholic Church and is one of three constituent colleges of Saint Augustine University of Tanzania. The college is located within Bugando Medical Centre in Mwanza, on the shores of Lake Victoria, in Tanzania. The college is run as a joint venture of the Catholic Church, the Tanzanian Government, and an Ivy- League Medical School in

¹² Hubert Kairuki Memorial University Website: <http://www.hkmu.ac.tz/index.html>

¹³ Kilimanjaro Christian Medical College of Tumaini University Website: <http://www.kcmc.ac.tz/KCM%20College.htm>

the USA (the Weill Medical College of Cornell University of New York). Its main core functions include teaching, research, and consultancy services. The mission of the College is to form a centre of excellence providing high quality education, research, and services in the field of the health sciences; to promote caring, humanitarian attitudes and commitment to generous service to the individual and the community in health care delivery services in addition to imparting academic and professional skills to students; and to strive for a holistic development of students by providing sound knowledge and the highest analytical ability and instilling in them the concern for ethical and moral values.

The vision of the college is to be a national and international centre of excellence for training, research, and practice of medicine and allied health disciplines relevant to the health needs of Tanzania and the world at large, and which espouses ethical values.

Organised civil society in health research

The Tanzanian government has recognised the key role of non-government actors such as civil society organisations (CSOs) in achieving the desired outcome of poverty reduction. Their roles and responsibilities, as seen by the government, include building local capacity and empowering communities; participating in monitoring and evaluation at national and community level; mobilising and enhancing community participation; and mobilising community resources for poverty reduction. CSOs are expected to advocate for accountability of its members and government to the people; and to work closely with government ministries and local authorities to ensure that cross-cutting issues are included and implemented in the sectoral and district plan [6].

Ifakara Health Institute (IHI)³

Detailed information on IHI is provided earlier in this document, under section 'Health research institutions', subsection 'Health research centres'.

Medical Association of Tanzania (MAT)¹⁴

MAT was established to promote the medical and allied sciences, to maintain the honour and interests of the medical professions and to uphold a high standard of medical ethics and conduct among its members.

MAT activities focus on:

- acting as representative body of the medical profession in Tanzania;
- liaising with and advising the Government on health and medical matters;
- ensuring, maintaining and safeguarding the interests, privileges and welfare of its members;
- acting as a coordinating body for other medical professional associations in health sciences;
- disseminating technical information and research findings in the field of medicine and allied sciences through the Tanzania Medical Journal which for all intents and purposes is the official organ of the Association;
- maintaining liaison by meeting, correspondence or otherwise with members of other medical associations and other related bodies throughout the world.

14 Medical Association of Tanzania Website: <http://www.mat-tz.org/>

Policy Forum (PF)¹⁵

Policy Forum is a network of NGOs incorporated as a non-profit company under the Companies Act of 2002. Its growing membership currently includes over 50 NGOs registered in Tanzania, drawn together by their specific interest in influencing policy processes to enhance poverty reduction, equity and democratisation.

The Forum's ultimate aim is to increase informed civil society participation in decisions and actions that determine how policies affect ordinary Tanzanians, particularly the most disadvantaged. PF operations are organised around three main areas of work, namely local governance, public money, and active citizens' voice.

PF has created space for NGOs to participate in various key policy processes, such as the development of the poverty reduction strategy as well as various sectoral policy processes. PF is open to national and international NGOs (including NGO networks) operating in Tanzania that have an interest in and commitment to influence policy from a pro-poor and human rights perspective.

PF activities are overseen by a Steering Committee, currently composed of seven officials elected by the General Assembly to serve 2 year terms. The Steering Committee is headed by a Chairperson supported by a Vice Chairperson. The majority of Steering Committee members represent Tanzanian NGOs.

The PF current three year strategy [34] focuses on analysing and independently monitoring implications and impact of policies and their implementation; disseminating the analysed and monitored information to policy makers, civil society and general public; enhancing the ability of civil society organisations to understand, monitor, engage with and influence national and local policy processes; and enhancing the selective and strategic approach to PF's active participation in national policy processes. PF's current three year strategy budget is of approximately USD 2 million (EUR 1.5 million), representing an annual average budget of USD 700,000.

Research on Poverty Alleviation (REPOA)¹⁶

REPOA began operating in early 1995 as a Tanzanian NGO. It has become now one of the leading independent non-profit research organisations in Tanzania. Its activities are designed around three main areas, namely the undertaking and facilitation of research, conduction and coordination of training, as well as promotion of dialogue and policy development for pro-poor growth and poverty reduction.

REPOA's current five year strategic plan focuses on strengthening the capacity of both knowledge producers and knowledge users intellectual resources; undertaking, facilitating, and encouraging strategic research; facilitating and stimulating the utilisation of research; and enhancing alliances with stakeholders. The institutional reported income for 2007 is USD 3.9 million (TZS 5,075 million).

REPOA's involvement in health research has been so far limited but it intends to increase its presence in this area, with the aim to ensure that research findings effectively inform policy processes. The two main research themes are vulnerability and social protection; and growth and poverty. Cross cutting issues include gender, environment and technology. Specific areas for health research identified under the two themes include issues of quality in social provisioning, the question of developing or failure to develop systemic capabilities across the public, private and voluntary sectors to ensure conditions of equitable access, and the question of how the financial architecture of social provisioning – user charges, insurance schemes, subsidies, etc., and their interaction nationally and locally – influence availability of, and access to quality services.

15 Policy Forum Website: <http://www.policyforum-tz.org/>

16 Research on Poverty Alleviation Website: www.repoa.or.tz/

Tanzania Public Health Association (TPHA)

TPHA was established in 1980 and registered under the Ministry of Home Affairs. The association obtained a certificate of compliance to the current NGO Act of 2002 in May 2008.

The Association's goal is to promote health and prevent diseases in Tanzania through sound public health practices, and to advocate for healthy life styles. Its mission is, therefore, to contribute significantly to the improvement of the health status of the Tanzania population, through promotion of good public health practices.

TPHA is a broad-based organisation. Its membership includes medical and public health officers, pharmacists, dentists, nurses, health officers, nutritionists, medical sociologists, behavioural scientists, economists, and educationists among others. Membership is also open to non-Tanzanians residing within or outside the country. Currently the Association has over 1,500 regular members from within Tanzania.

TPHA's governing body is the Annual General Meeting where members ratify decisions of the Executive Committee. The election of office bearers is carried out every 2 to 3 years. The Association has a full time secretariat headed by a programme manager, responsible for overall management and coordination of the Association's ongoing public health programmes and project activities. Other staff members at the secretariat are project officers, assistant accountant, office secretary and driver. Project coordinators are recruited on fixed contract arrangements to implement specific donor-funded projects.

The main activities of the Association are providing consultancy services, building capacity, convening its annual scientific conferences, and organising periodic public health seminars.

Regional organisations and networks

African Medical and Research Foundation (AMREF)¹⁷

AMREF is an international African organisation headquartered in Nairobi, Kenya. It implements its projects through country programmes in Kenya, Ethiopia, Uganda, Tanzania, Southern Sudan and South Africa. Training and consulting support are provided to an additional 30 African countries.

Knowledge is a core product of AMREF's activities. The organisation seeks to empower communities to take control of their health and to establish a vibrant and participatory health care system made up of communities, health workers and governments.

AMREF's strategy seeks to strengthen health systems and to design and enhance interventions that improve people's access to health through their active participation. The organisation's activities are focused on three interdependent programme themes, namely community partnering for better health, health systems and policy research, and capacity building.

In Tanzania AMREF activities are directed to:

- Encouraging people to get themselves tested for HIV through the Angaza project and reducing the stigma attached to the disease.
- Empowering women to recognise their reproductive health rights and be able to openly discuss the issue with their spouses.
- Raising awareness of sexual health issues amongst young people through the Mema Kwa Vijana project, which means 'Good Things For Young People'.

¹⁷ African Medical and Research Foundation Website: <http://www.amref.org/>

- Funding HIV organisations throughout the country as the major recipient of a grant from the Global Fund for HIV, TB and malaria.
- Improving water, sanitation and reproductive health services and reducing childhood illnesses in Mkuranga district.

The African Malaria Network Trust (AMANET)¹⁸

AMANET started its activities as the African Malaria Vaccine Testing Network (AMVTN) in 1995, with the primary goal of preparing Africa in planning and conducting malaria vaccine trials. Due to expanding goals in malaria interventions, AMVTN was succeeded by AMANET in 2002 to reflect a widened scope that incorporates a broad and integrated approach in the fight against malaria.

The mission of AMANET is to promote capacity strengthening and networking of malaria R&D in Africa. Its broad objective is to continue developing self-sustainable centres in Africa that meet international requirements for conducting malaria intervention trials.

AMANET activities are directed to achieve the following specific objectives:

- Develop and support implementation of standards for the expertise and infrastructure required to perform and to evaluate intervention trials.
- Promote and coordinate capacity strengthening activities of African malaria R&D institutions.
- Further develop previously selected centres for clinical trials so as to attain sustainability.
- Select more centres for future strengthening for more clinical trials.
- Support long-term training of research personnel.
- Develop suitable training programmes in accordance with international standards.
- Fill gaps in infrastructure of the selected centres.
- Disseminate information of AMANET activities.
- Facilitate and promote the conducting of intervention trials.
- Sponsor clinical and field trials.
- Promote development of African indigenous antimalaria medicines.
- Promote development of appropriate malaria diagnostics.
- Establish a data management centre for AMANET funded trials.

Lake Victoria Research Initiative (VicRes)¹⁹

VicRes is a window for supporting inter- and multi-disciplinary research that would contribute towards poverty reduction and environmental restoration in the Lake Victoria Basin. It was established in 2002 through a consultation process involving academics, researchers and stakeholders drawn from universities and research organisations in East Africa, and Sida/SAREC. It is funded by Sida/SAREC.

VicRes is hosted by the Inter-University Council for East Africa (IUCEA) at its headquarters in Kampala, Uganda. The IUCEA is one of the autonomous institutions of the East African Community (EAC). Its mission is to encourage and develop mutually beneficial collaboration between member universities, and between them and other organisations – both public and private.

As part of its commitment to promote regional interaction among EAC Partner States (Uganda, Kenya, Tanzania, Rwanda and Burundi), the IUCEA hosts and/or implements a number of other projects and programmes in partnership with organisations such as the Rockefeller Foundation and the East African Development Bank. These include the East

¹⁸ The African Malaria Network Trust Website: www.amanet-trust.org

¹⁹ Lake Victoria Research Initiative Website: <http://www.vicres.net/aboutus.php>

African Regional Programme for Biotechnology, Biosafety and Biotechnology Policy Development (Bio-Earn) that involves scientists from Kenya, Uganda, Tanzania and Ethiopia.

VicRes is operated through a secretariat - closely working with the Policy Advisory Committee and the Scientific Advisory Committee. The latter draws membership from the EAC Partner States.

Implementation of research activities also involves host institutions including IUCEA member universities and other East African institutions that have the capacity to undertake research. Each host institution must have a formal agreement signed with IUCEA.

The overall goals of VicRes are to promote sustainable livelihood and natural resources management in the Lake Victoria Basin; and to re-invigorate research and stimulate discussions on issues that affect people and environment of the Lake Victoria Basin. VicRes activities are directed to achieve the following objectives:

- Enhance knowledge on land-human-environment interactions so as to justify interventions relevant to poverty reduction and environmental restoration.
- Promote access to research findings in and outside the East African region for effective decision-making.

VicRes is encouraging an inter- and multi-disciplinary approach to research, which increasingly utilises applications of more than one technique. This approach promotes interactions between individuals from different training backgrounds and institutions in EAC Partner States.

Discussion and conclusions

The findings of this study illustrate that Tanzania has a well developed health research system, with a large variety of institutions at governmental, academic and civil society level, and substantial human and financial resources that can be put to use to strengthen health research within the country.

The political support for research is given from the highest level, with President Jakaya Kikwete announcing in 2009 an increase of public research funding from 0.3% to 1% of GDP, starting from the next financial year (2009/2010). This provides an excellent opportunity to target outstanding challenges, and to make research more effective in addressing public health problems and in contributing to development in Tanzania.

This study identified four key remaining challenges: 1) further strengthening health research governance, 2) enhancing financial stability for health research, 3) improving access to essential information to manage research in the country, and 4) including health research in alignment and harmonisation processes.

Strengthening health research governance

1. National development strategies and policies are addressed to the health sector, with only a tacit and peripheral consideration of health research.
 - a. The national Science and Technology Policy currently in place does not make explicit reference to health research.
 - b. Tanzania does not have a specific health research policy.
It would be useful to consider developing a more explicit policy framework that sets out the national strategic directions for health research.

2. The National Institute for Medical Research (NIMR), the key regulatory body for health research in Tanzania, has undertaken a process for priority setting in health research.
 - a. The process has improved over the years, by gaining governmental support and by becoming more inclusive.
 - b. The list of health research priorities resulting from this process is referred to by some of the national research institutions as guiding their institutional priority setting process.
 - c. However, none of the key governmental documents dealing with health (i.e. NSGRP, TAS, JAST, JAHSR) refer explicitly to the defined health research priorities. Effort still needs to be made for the process to broaden to more sectors influencing health research; as well as for increasing national visibility and adherence.

3. Coordination and clearance of health research appear to be part of one single process.
 - a. The process ensures interaction between regulating and coordinating bodies, namely NIMR, COSTECH, TFDA and MoH.
 - b. Research clearance appears to be a well established mechanism.
 - c. Beyond research ethical and scientific clearance, it is not clear if and how coordination happens between the ministries involved in the health research system.

COSTECH would be the appropriate government agency to provide overall research guidance and coordination both within the S&T sector and across all sectors influencing research, to ensure sectoral linkage to the national S&T strategy and priorities.

Enhancing financial stability for health research

The limited budget given to health research has been a recurrent argument throughout this study to explain, in part, some of the deficiencies related to health research coordination.

1. Indeed, there is no specific budget line for health research in the government budget.
2. Furthermore, over the last two years research institutions have experienced a consistent decrease in public research funding, though medical sciences receive the largest part of public funding (75% of all public funding in 2004).

The observed trends are expected to be reversed following the recent commitment made by the Tanzanian President to increase public research funding from 0.3% to 1% of GDP. This very promising commitment will help create the needed financial stability for health research.

Improving access to essential information

The research management function of COSTECH (and of other coordinating institutions such as NIMR) is difficult to fulfil when essential information to manage the research system is not accessible.

1. The current study illustrates the difficulty in obtaining research related information.
 - a. The study attempted to get an overview of research conducted in the country by means of information resulting from the ethical clearance process, i.e. a list of health research projects cleared over the past two years. Although this information provided some insight into the kind of research proposals reviewed, it does not indicate whether the projects were actually implemented, how they were resourced, and who was involved.
 - b. The official requirements for researchers to report back on the research carried out, their outputs and outcomes, are not strictly followed up, and this information is thus not systematically collected.
 - c. Financial data, as well as information on research projects conducted in the country, areas addressed by this research, their relevance to national priorities, and the outputs and outcomes of the research, are currently not readily available.
2. Despite the above mentioned limitations in access to health research information, the value and importance of research are acknowledged by the use of some health research outputs in official evaluations, reviews and reports supporting policy processes.
 - a. Every financial year the Ministry of Health and Social Welfare and the Prime Minister's Office Regional Administration and Local Government convene a joint review of the health sector. The aim of this review is to assess the health system performance in terms of inputs, process, outcomes and impact. To inform this review, a report – the "Health Sector Performance Profile Report", is developed on the basis of evidence produced through research. The latest report has used research data mainly provided by the Ifakara Health Institute [10].

To address the above mentioned gaps and to support the use of research outputs, COSTECH is developing a research information system comprising all of the essential information needed to manage S&T – including health research, in the country.

- a. The Tanzanian research information system will be operated through Health Research Web, an electronic platform made available by COHRED.
- b. Such research information system should:
 - i. Facilitate essential research management tasks, such as:
 - decisions on which research areas need additional funding or human resources (i.e. the neglected priority areas);
 - decisions on decentralisation of funding, for research to be carried out in the geographical regions where research is most needed;
 - review of national priority areas;
 - review of national human resource strategies.
 - ii. Improve research financial management:
 - by providing information on research grants, on their sources (public or private, national or international agencies), on their delivery channels (direct or through research institutions based in other countries).
 - to help facilitate negotiations with national and international funding bodies regarding how best to invest the available resources, in order to obtain highest return for health and development in Tanzania.
 - iii. Enhance networking opportunities among all research actors.

Including health research in alignment and harmonisation processes

Though major efforts are being made between the Tanzanian Government and donors to align and harmonise aid in general and within the health sector in particular, health research itself has not yet received sufficient attention.

1. In an attempt to increase country ownership, one of the country priority areas is to integrate external resources into the government budget. Basket funds are the main delivery aid modality used for financing public reform programmes, including the health sector programme. It has been reported that such aid modality, as opposed to General Budget Support, decreases government ownership and increases transaction costs.
 - a. Basket funds in the health sector appear to have a negative effect in health research, as less resources are allocated to health research since their implementation.
 - b. Health research is not a priority within health, hence distribution of money from the health basket funds tend to go primarily to basic care needs, thus relegating health research to second place.

Considering alternative funding streams to health research may help counteract the negative effects of Basket funding. Possible streams would be to link health research to the S&T budget, or to create a specific budget line for health research within the Ministry of Health's budget.

2. As a way to increase alignment, the Government is seeking to improve national capacities for aid coordination and external resource management.
 - a. For the aims of this study it was very difficult to perform a quantitative assessment of external public and private funding going to Tanzania for health research.
 - b. Donor data is not easily accessible, and when provided, it is not necessarily complete and it is presented in a variety of formats not allowing for comparison. Facilitating the access to funding information will greatly enhance the ability of research managers to exercise effective governance of research in the country.

3. Harmonisation and rationalisation of donor policies and procedures is also a country priority area. The Tanzanian health sector benefits from several well developed mechanisms meant to improve harmonisation, namely SWAp working groups, joint annual health sector reviews, development partners group health (DPG Health).
 - a. There is no specific group of donors for health research in Tanzania, nor a coordination body for health research among development agencies.
 - b. Though information on health research is shared during DPG Health meetings, health research is not a prominent issue.
 - c. There are a large number of external donors and funding agencies supporting health research in Tanzania at the individual level. These external resources have a substantial influence on the research being conducted. Institutions that have limited core funding are exposed to a higher risk of external project funds dominating (or changing) their agenda.

Considering that health research is an essential vehicle for health development, external donors and sponsors should contemplate organising and consolidating their support to health research. Research institutions should be granted the core funds needed to ensure institutional stability while supporting their commitment to work towards national health and development goals. Further, donors and funding agencies should seek creative ways of increasing their grants complementarities, so as to deliver a more comprehensive support that builds on research systems rather than on research projects.

While alignment and harmonisation of externally funded health research financing has potentials, it also has possible drawbacks. A comprehensive assessment of the possible negative effects of alignment and harmonisation on the Tanzanian health research system is beyond the scope of this report. Nevertheless, we do note that one particular risk has been highlighted by Tanzanian researchers, namely that i) a too rapid change-over of targeted research funding to a basket-funding approach may reduce income of existing Tanzanian institutes as basket funding in health may not be spent on research; and ii) harmonisation of health research funding for non-government institutes may well be easier to achieve, and thus desirable, however in combination with the first problem it may lead to strengthening non-governmental institutions instead of governmental ones.

References

1. Council on Health Research for Development (COHRED). Alignment and Harmonisation in Health Research. AHA study. 2008; Available from: <http://www.cohred.org/AHA/>.
2. Paris Declaration on Aid Effectiveness. Ownership, Harmonisation, Alignment, Results and Mutual Accountability. High Level Forum. Paris, France, February 28 to March 2, 2005. 2005.
3. Government of Tanzania, National Website. Tanzania Country Profile. 2009; Available from: <http://www.tanzania.go.tz/profilef.html>.
4. Tanzania National Bureau of Statistics. Tanzania Demographic and Health Survey, 2004-2005. 2005.
5. Government of Tanzania, Planning Commission. The Tanzania Development Vision 2025.
6. Government of Tanzania. Vice President's Office of the Republic of Tanzania. National Strategy for Growth and Reduction of Poverty (NSGRP). 2005.
7. Government of Tanzania, Ministry of Health. National Health Policy. 2003.
8. Government of Tanzania, Ministry of Health and Social Welfare. Health sector strategic plan III, July 2009 - June 2015. Final Draft Version 17 September 2008. 2008.
9. Government of Tanzania, Ministry of Health and Social Welfare. Primary health services development programme (PHSDP). 2007.
10. Government of Tanzania, Ministry of Health and Social Welfare. Health Sector Performance Profile Report 2008 Update: Mainland Tanzania July 2007 - June 2008. 2008.
11. Government of Tanzania, Ministry of Science, Technology & Higher Education, The National Science and Technology Policy for Tanzania. 1996.
12. Government of Tanzania, Ministry of Health and Social Welfare, Health Sector Reform Secretariat, DPP. 9th Joint Annual Health Sector Review. 2008.
13. National Institute for Medical Research. Tanzania National Health Research Priorities, 2006-2010. 2006.
14. National Institute for Medical Research. Strategic Plan 2008 - 2013. 2008.
15. Tanzania National Health Research Forum. Rolling strategic plan for the period 2007/8 to 2011/12. 2007.
16. Tanzania National Health Research Forum, National Health Research Ethics Committee. Guidelines on Ethics for Health Research in Tanzania. 2001.
17. Harvard School of Public Health. Global Research Ethics Map: Tanzania. Available from: <https://webapps.sph.harvard.edu/live/gremap/view.cfm>.
18. Government of Tanzania, Ministry of Health. The Tanzania Food, Drugs and Cosmetic Act, 2003. 2003.
19. Kilima, S; Urassa, JE; Kilale, AM; Ikingura, JK; Mboera, LEG. Situation analysis on health/medical research coordination and ethics in Zanzibar. Report submitted to the World Health Organization, Dar es Salaam, February 2008. 2008.
20. Helleiner, G. et al. Report of the Group of Independent Advisers on Development Cooperation Issues between Tanzania and Its Aid Donors. Royal Danish Ministry of Foreign Affairs, Editor. 1995.
21. Government of Tanzania. Joint Assistance Strategy for Tanzania (JAST). 2006.
22. Norwegian Agency for Development Cooperation. Tanzania: New aid modalities and donor harmonisation. 2003.

23. Rome Declaration on Harmonisation. High Level Forum. Rome, Italy, February 25, 2003. 2003
24. Global Donor Platform for Rural Development. Assessment Study on Harmonisation and Alignment in Rural Development in four Pilot Countries - Nicaragua, Burkina Faso, Tanzania and Cambodia. 2005.
25. Development Partners Group Health. Available from: <http://www.tzdpdg.or.tz/dpghealth/>.
26. Government of Tanzania & Development Partners. Memorandum of Understanding between The Partners (Government of Tanzania & Development Partners) participating in the pooled funding (Basket) of the Health Sector: July 1, 2008 - June 30, 2015. 2008.
27. Kitua, AY; Swai, GBR; Urrio T. Fund Flows to Health Research Institutions in Tanzania, in Tanzania Strategic Research Series 2002. 2002, Tanzania National Health Research Forum.
28. Shoo, J. Just 0.7 percent, but still a most welcome increment, in The Guardian. 2009: Dar es Salaam.
29. Tanzania Commission on Science and Technology. National Health Research System in Tanzania. 2009, Unpublished.
30. Tanzania Food and Nutrition Centre. Tanzania Food and Nutrition Centre Strategic plan 2005/2006 - 2009/2010. 2006.
31. Ifakara Health Institute. IHI Strategic Plan, 2008-2013. Delivering operational excellence. 2009.
32. Muhimbili University of Health and Allied Sciences. Five year rolling strategic plan 2008/9 to 2012/13. 2008.
33. Barret, E; Nakabugo MG. Irish-African Partnership for Research Capacity Building. An interim report on the findings of the first phase of the IAPRCB stakeholder consultation, draft. 2008.
34. Policy Forum. Strategic plan, January 2008 to December 2010. 2007.

Annex 1

National health research system framework

NHRS Development

FRAMEWORK FOR DEVELOPING A NATIONAL HEALTH RESEARCH SYSTEM

USING HEALTH RESEARCH TO IMPROVE POPULATION HEALTH, HEALTH EQUITY, AND DEVELOPMENT

- ▶ The starting point for strengthening a country's health research system is a clear picture of the current state of health research – and the areas where development should be targeted
- ▶ Using this view, countries can apply various approaches, tools and methods to implement a strategy of system strengthening
- ▶ Building support and ownership from all stakeholder groups is essential to successful system strengthening

| Stage of development | Actions needed |
|--|---|
| Building the socio-political environment | |
| Political commitment to health research | Advocacy, awareness, data and discussion targeting policy makers and other influential stakeholders. |
| Political & socio-economic climate | Respect for human rights & investment friendly. |
| Level 1 needs – The foundations of a health research system | |
| Health research <u>priorities</u> | Credible priority setting regularly updated |
| Health research <u>policy framework</u> | Develop policies/policy framework for research and health research |
| <u>National research management</u> | Establish mechanisms and structures appropriate to countries' existing structures and aspirations for research. |
| Level 2 needs – Initial policy goals | |
| Human Resources for Health Research | Develop a medium-long term human resources strategy and plan aligned with priorities. |
| Stable, predictable research financing | Develop a medium-long term health research financing strategy, including donor alignment and harmonisation. |
| Level 3 needs – Optimising the health research system | |
| Improving health research system components | for example: - Research ethics. - Research communication, including evidence to policy & practice. - Peer review vs committee review. - Merit-based promotion system. - Community demands for research. - Monitoring & evaluation of impact. - Health systems research needs. - Good research contracting. - Technology transfer arrangements. - Intellectual property rights. - Institution building. |
| Integrating the system | |
| International collaborative arrangements | - bilateral - regional - international organisations - donors / research sponsors |
| Linking to other sectors | - Science, technology and innovation - Education - Business and economic development - Social services - Agriculture |

COUNCIL ON HEALTH RESEARCH FOR DEVELOPMENT (COHRED)

www.HealthResearchForDevelopment.org

COHRED

Annex 2

List of stakeholders interviewed

Government

| | |
|---|---|
| COSTECH Tanzania Commission for Science & Technology | Hassan Mshinda Director General |
|---|---|

Research Institutions

| | |
|--|---|
| NIMRI National Institute for Medical Research | Mwele Malecela Chief Research Scientist |
|--|---|

| | |
|---------------------------------|--|
| STI Swiss Tropical Institute | Don de Savigny Head of the Health Systems Interventions Unit Department of Public Health and Epidemiology |
|---------------------------------|--|

| | |
|--|--|
| TFNC Tanzania Food and Nutrition Centre | Godwin D. Ndossi Managing Director |
|--|--|

NGOs

| | |
|---------------------------------|----------------------------------|
| IHI Ifakara Health Institute | Salim Abdulla Director |
|---------------------------------|----------------------------------|

| | |
|--|---|
| REPOA Research on Poverty Alleviation | Paula Tibandebage Senior Researcher |
|--|---|

Donors and Sponsors

| | |
|---|--|
| AfDB African Development Bank Ireland - Irish Aid | Oswald Leo Social Development Specialist Tumaini Mikindo Health Advisor |
|---|--|

| | |
|---|---|
| NORAD Norwegian Agency for Development Co-operation | Hanne Tilrem Health Advisor Wanjiku Kamau International Consultant |
|---|---|

| | |
|---------------------------|---|
| Royal Netherlands Embassy | Rik Peeperkorn First Secretary Health |
|---------------------------|---|

| | |
|--|--|
| SDC Swiss Agency for Development Cooperation | Jacques Mader Health Advisor |
| SIDA Swedish International Development Agency | Maria Teresa Bejarano First Secretary Higher Education & Research Embassy of Sweden |

| | |
|---|--|
| USAID U.S. Agency for International Development | Charles Llewellyn PHN Chief |
| World Bank - IDA International Development Association | Dominic S. Haazen Lead Health Policy Specialist Africa Human Development Department |

Annex 3

List of health priority problems for research

From: Tanzania National Health Research Priorities 2006 – 2010 [13]

Summary of priority research areas

| BIOMEDICAL RESEARCH | | HEALTH SYSTEMS RESEARCH | |
|---------------------|--------------------------------------|-------------------------|---|
| Priority Level | Group of health problem | Priority Level | Group of health problem |
| High | Communicable Diseases, Major | High | Human Resources for Health |
| High | Communicable Diseases, "Neglected" | High | Reproductive and Child Health |
| High | Maternal and Child Health | High | Health Service Delivery |
| Medium | Disease Control | High | HIV/AIDS |
| Medium | Non-Communicable Diseases | High | Health Financing |
| Medium | Nutrition | Medium | Drugs and Medical Supplies |
| Medium | Basic Research | Medium | Health Information |
| Low | Environmental Health | Medium | Health Policy |
| Low | Product Development | Medium | Essential Health Interventions Packages |
| Low | Gender | Medium | Decentralisation |
| Low | Traditional and Alternative Medicine | Low | Inter-sectoral Collaboration |
| Low | Occupational Health | Low | Public Private Partnership |
| | | Low | International Funding Initiatives |

Health determinants, socio-cultural, health related behaviour*

* The issue of socio-cultural determinants of health is considered to be an aspect of any of the research areas – either in Biomedical research or Health Systems research. It was therefore agreed to represent it in the final summary table as a "cross cutting area" so that its importance is not lost.

Priorities in biomedical research

HIGH priority areas and topics

Communicable diseases of major public health importance

- Respiratory infections
- Malaria and other arthropod –borne infections
- Water-borne infections (including rotavirus)
- Tuberculosis
- HIV/AIDS

Communicable diseases of local priority

- Vector–borne diseases (Lymphatic filariasis, Onchocerciasis, Schistosomiasis, African human trypanosomiasis, Tick-borne relapsing fever, Plague)
- Hookworm and other, intestinal worms
- Zoonoses (beef tapeworm, hydatid disease)

Maternal and Child Health Maternal Health

- STIs including HIV/AIDS
- Pregnancy related disorders
- Women related cancers
- Traditional birth attendants
- Anaemia in pregnancy
- Child Health
- Childhood infections
- Neonatal disorders
- Malnutrition

- Growth and development
- Accidents and injuries
- Childhood cancers
- Helminthic infections
- Mother to child transmission including HIV/AIDS, rubella, syphilis

MEDIUM priority areas and topics

Disease Control – *Vaccine trials*

- Clinical drug trials on host (malaria, HIV, papilloma virus, TB)
- Vector control (malaria, filariasis, sleeping sickness, tick-borne relapsing fever)
- Behavioural interventions (STI, HIV, diarrhoea)
- Environmental manipulation (malaria, filariasis and schistosomiasis vectors)

Non-Communicable Diseases

- Cancers
- Mental health
- Cardiovascular diseases
- Diabetes
- Accidents and injuries
- Substance abuse (alcoholism, drug abuse)
- Geriatric disorders
- Neurological disorders

Nutrition

- Protein energy undernutrition and overnutrition
- Micronutrients and diseases
- Nutrition and HIV/AIDS/TB
- Diet related disorders
- Early childhood nutrition including breastfeeding
- Nutrition and the elderly

Basic Research

- Molecular biology and genetics
- Immunology
- Biology and ecology (host, parasite/ pathogens, vectors)
- Pharmacokinetics

Priorities in health systems research

HIGH priority areas and topics

Human resources for health

- Adequacy of staffing levels
- Design and test incentive packages for hardship areas

Recruitment and retention

- Impact of lengthy procedures in recruitment
- Investigation of labour market competitiveness
- Leadership factors affecting human resource management
- Factors of the current human resource management
- Human resource performance
- Labour market and effects to human resource training
- Graduate tracer studies
- Declining interest in medicine at post graduate level

Reproductive and Child Health

- Factors mitigating against safe motherhood
- Factors determining place/choice of delivery by 'skilled workers'
- Availability and effectiveness of EMOC services
- Adequacy of peri-natal and neonatal care
- Infant and child feeding & breast feeding practices
- Factors contributing to neonatal and perinatal morbidity and mortality
- Status and adequacy of post natal and post abortion care
- Factors causing variations in MMR and IMR and U5M across regions and districts

Health Service Delivery

- I.E.C and behavioural change communication
- Physical conditions of buildings and impact to services
- Distribution of health facilities
- Quality of health services (Technical and clients aspects)
- Referral system
- NGO co-ordination and working relationships
- Equity
- Supervision, monitoring and evaluation
- Roles and contribution of traditional medicine to service delivery
- Levels of utilisation of health services
- Integration of services
- Capacity of districts to control distribution of resources
- Market forces and effects to decentralisation

HIV/AIDS

- Scaling up of intervention (VCT, PMTCT, ARV interventions)
- Issues of equity on interventions
- Stigma and discrimination
- Co-ordination of activities on HIV interventions especially by NGOs
- Impact on health service delivery system
- Effectiveness of current interventions
- Socio-cultural aspects on HIV transmission including behavioural change
- Traditional healers practices

Health financing

- Resource mobilization and impact
- Resource allocation at different levels
- Benefit incidence analysis
- Studies on financial accountability to tax payers
- Cost and expenditure tracking studies

MEDIUM priority areas and topics

Drugs and Medical Supplies

- Drug importation
- Storage and distribution
- Rational use of drugs
- Drug policy implementation
- Key gaps in essential supply system

Health Information Systems

- Effectiveness and efficiency of tools for decision support and adoptive management
- Health information systems, information technology and communication systems in the Health Sector

- Research on information uptake
- Utilisation of health information for policy and decision making

Health Policy

- Effective use of evidence in policy and decision making
- Causes of limited utilisation of research findings to inform policy and decision making
- Capacity building in policy analysis
- Evaluation research relating to implementation of various programmes

Essential Health Intervention Packages

- Applicability, success or failure
- Resource availability
- Status of intervention
- Cost effectiveness
- Scaling up of major interventions (Malaria, TB-DOTS, EPI)

Decentralisation

- Mismatch between roles and qualification of officials at decentralised structure
- Effect of current organisational structure to effective decentralisation
- Community involvement and participation
- Effectiveness of Health Boards and Committees

Socio-cultural determinants

- Food taboos in pregnancy and child/infant health
- Female Genital Mutilation
- Gender issues
- Sexual abuse
- Inheritance of widows
- Early marriage
- Social constructs (taboos, customs, beliefs, traditions)

LOW priority areas and topics

Inter-sectoral collaboration

- Sectoral problems as implications of the implementation of MKUKUTA
- Conflicting regulations/legislation authority
- Sector wide Approach to programming, synergies, collaboration, resource sharing, synchronizing programmes and projects
- Duplication of efforts and roles
- Inter- Sectoral issues under MDGs related to:
 - Environmental sustainability
 - Nutrition
 - Sanitation
 - Water safety access

Private- Public Partnership (PPP)

- Contract management
- Challenges for PPP

International Funding Initiatives

- Impact of existing initiatives
- The implication to the national priorities
- Sustainability and Coordination

Annex 4

Health research projects cleared in 2007 and 2008

Project Title

- 1) A baseline study of social economic status of rural communities and its effect on children nutrition and HIV/AIDS in Tanzania
 - 2) A biocultural examination of the peripartum and conceptualizing the peripartum
 - 3) A case-control study of genetic mechanisms of protective immunity to severe malaria: Investigating mechanisms of protective immunity against malaria: diversity of immune function genes in north-east Tanzania: Amendment
 - 4) A community-based study to assess the impact of coartem when used as national policy first-line treatment on malaria morbidity and mortality in Tanzania
 - 5) A novel therapeutic agent for effective control of HIV infected patient's safety and efficacy evaluation in Tanzania
 - 6) A phase II parallel randomized clinical trial comparing the response to initiation of NNRTI based versus PI based ARV therapy in HIV infected infants who have not previously received SDNVP for PMTCT
 - 7) A phase II randomised double blind controlled study of the safety immunogenicity and proof of concept of RTS, S/ASO2D, a candidate malaria vaccine when incorporated into an expanded program on immunization (EPI) regimen that includes DTPW/Hib in infants living in a malaria endemic region: Amendment
 - 8) A phase II randomized open controlled study of the safety and immunogenicity of Glaxo-SmithKline Biologicals candidate Plasmodium falciparum malaria vaccine RTS/ASOIE, when incorporated into on expanded programme on immunization regimen
 - 9) A phase II trial to determine the efficacy and safety of an extended regimen of nevirapine in infants born to HIV infected women to prevent vertical HIV transmission during breastfeeding
 - 11) A phase II, two centre, open label study to assess the antimalarial efficacy and safety of fixed dose combination dispensable tables of artemolane (RBx11160) maleate and piperazine phosphate in pediatric patients with acute uncomplicated Plasmodium falciparum malaria
 - 12) A phase III comparative, open-label, randomised, multi-centre, clinical study to assess the safety and efficacy of fixed dose formulation of pyronaridine artesunate (180:60mg tablet) versus mefloquine (250 mg tablet) plus artesunate (100 mg tablet) in children and adult patients with acute uncomplicated Plasmodium falciparum malaria (SP-C004-06)
 - 13) A phase III evaluation of the insecticidal efficacy and household acceptability of Interceptor long lasting net (LN) in comparison with conventional insecticide treated nets in Tanzania
 - 14) A pilot study of Lopinavir Ritonavir in participants experiencing Virologic Relapse on NNRTI containing Regimen SACG A5230
 - 15) A randomised trial of fluid resuscitation strategies in African children with severe febrile illness and clinical evidence of impaired perfusion
 - 16) A randomized controlled trial: Is the administration of a single prophylactic dose of ampicillin and metronidazole before cesarean section as effective as multiple day regimens of these antibiotics to prevent postpartum maternal infection in a low resource setting?
 - 17) A randomized placebo controlled double blind treatment shortening regimens with standard regimen (two months) Ethambutol isoniazid rifampicin and pyrazinamide followed by four months Isoniazid and pyrazinamide followed by two months Controlled Comparison of Two Moxifloxacin containing treatment shortening regimens on pulmonary tuberculosis: Amendment
-

| Investigator | Institution | Funding agent | Subject | Alignment with National Priorities? | Was it implemented? |
|--------------|-------------|---|---------------------|-------------------------------------|---------------------|
| E. Ngadaya | NIMR | USAID | HIV/AIDS | Yes | No |
| E. Abrahams | | | Reproductive Health | Yes | |
| R.Olomi | KCMC | Malaria GEN Consortium | Malaria | Yes | |
| B. Genton | IHI | Novartis Foundation | Malaria | Yes | |
| J.J. Massaga | NIMR | PHONEX BIOSCIENCES Inc. Florida | HIV/AIDS | Yes | No |
| J. Bartlett | KCMC | The National Institute of Allergy and Infectious Diseases (GlaxoSmithKline) | HIV/AIDS | Yes | |
| S. Abdulla | IHI | Malaria Vaccine Initiative (MVI) | Malaria | Yes | |
| S. Abdulla | IHI | MVI | Malaria | Yes | |
| K. Manji | MUHAS | | HIV/AIDS | Yes | |
| S. Abdulla | IHI | Not done | Malaria | Yes | |
| S. Abdulla | IHI | Shing Poong Pharmacy +MMV | Malaria | Yes | |
| S. Magesa | NIMR | Bayer pharicals and WHOPEs, Geneva | Malaria | Yes | Yes |
| J. Bartlett | KCMC | National Institute of Allergy and Infectious Diseases. | HIV/AIDS | Yes | |
| G. Mtove | NIMR | Malaria GEN Consortium | Malaria | Yes | |
| R. Pascal | | | Reproductive Health | Yes | |
| N. Sam | KCMC | | Tuberculosis | Yes | |

Project Title

- 18) A safety and acceptability study of a vagina ring microbicide delivery method for the prevention of HIV infection in women: Amendment
 - 20) A study on Adverse Drug Reactions among users of Antiretroviral drugs in Tanzania 2007
 - 21) A study on into the costs of collaborative TB/HIV/AIDS interventions in Tanzania
 - 22) A study to assess recruitment, motivation and Retention of health workers in Tanzania
 - 23) Adherence and treatment outcomes of adult patients on ARV therapy in four northern regions of Tanzania
 - 24) Amendment evaluation of transient DNA detection to diagnose tuberculosis (TB Tr DNA)
 - 25) A feasibility study to assess potential cohort suitability for future microbicide trials in North West Tanzania: Ammendement
 - 26) Identification of parasite Ligads and solube Mediators involved in malaria during early life: Ammendement
 - 27) The pharmacokinetics of co-formulated Emtricitabine /Tenofovir + Efavirenz in HIV- infected patients with smear-positive pulmonary tuberculosis in Moshi, Tanzania: Ammendement
 - 29) Antifungal properties of Anogeissus leiocarpus and Terminalia avicenniodes
 - 30) Applicability of rapid diagnosis of malaria as compared to microscopy in the Ngorongoro Conservation Area, Tanzania
 - 31) Artemisia: challenges and consequences entailed by medical plant promoted in Tanzania
 - 32) Assessment of ARV drug distribution system in Tanzania: A case of Bagamoyo, Kibaha, Mkuranga and Kisarawe District Hospitals, Coast Region
 - 33) Assessment of efficacy of foods for convalescing infants 6-12 months of age in relation to morbidity and nutrition status 2007/2008
 - 34) Assessment of magnitude causes and effects of use traditional herbs to induce labor in pregnant mothers in Rungwe District of Mbeya Region, southern Tanzania
 - 35) Assessment of patient's satisfaction with quality of ARVs service provision in Tanzania hospitals
 - 36) Assessment of quality of nursing services in selected public health facilities in Tanzania
 - 37) Assessment of sputum smear microscopy and culture conversion rate among smears positive pulmonary tuberculosis patients starting tuberculosis patients starting tuberculosis treatment in Dar es Salaam
 - 38) Assessment of the effectiveness of integration of family planning and prevention of mother to child transmission of HIV service, Njombe
 - 39) Attraction of odour-lures over medium and long-range for trapping host seeking Anopheles gambiae
 - 40) Born in Tanga maternal health seeking behaviour in a northern Tanzanian City and in its rural surroundings
 - 41) Characterize and asses the impact of livestock production on health and income in Kisumu, Entebbe and Mwanza urban centres
 - 42) Chavi 3 immune responses in exposed, uninfected women with multiple partners
 - 43) Clinical manifestations and outcomes and in paediatric patients admitted with severe AQUAMAT Network
-

| Investigator | Institution | Funding agent | Subject | Alignment with National Priorities? | Was it implemented? |
|---------------|-----------------------|--|--|-------------------------------------|---------------------|
| G. Masenga | KCMC | International Partnership for microbicides | HIV/AIDS | Yes | |
| H. Irunde | TFDA | | HIV/AIDS | Yes | |
| E. Wandwalo | MoH | | Health Systems (HIV/TB) | Yes | |
| A. Mwisongo | NIMR | Trinity college | Health Systems (Human Resource) | Yes | Yes |
| A. George | AIDS Relief | PEPFAR | HIV/AIDS | Yes | |
| K. Reither | MMRP | European Commission | Tuberculosis | Yes | |
| S. Kapiga | NIMR | EDCTP | HIV/AIDS | Yes | |
| T. Mutabingwa | SBRI/SUA | NIH/GCGH | Malaria | Yes | Yes |
| G. Kibiki | KCMC | University center of Nijmegen | HIV/ Tuberculosis | Yes | |
| A. Nyigo | NIMR | HRUTF | Traditional Medicine | Yes | No |
| J. Hartfield | University of Calgary | | Malaria | Yes | |
| C. Biesen | | | Traditional Medicine | Yes | |
| A. Mdemu | NIMR | HRUTF | Health Systems/HIV | Yes | No |
| M. Kibona | NIMR | UNICEF+TFNC | Nutrition | Yes | No |
| M. Mayinge | NIMR | HRUTF | Traditional Medicine/Reproductive Health | Yes | No |
| J. Ogodiek | NIMR | HRUTF | Health Systems | Yes | No |
| R.F. Sanga | NIMR | | Health Systems | Yes | |
| M. Senkoro | NIMR | University of Bergen | Tuberculosis | Yes | Yes |
| B. Mduma | | | HIV/Health Systems | Yes | |
| L. Biswaro | IHI | Durham University | Malaria | Yes | |
| V. Sartori | | | Health Systems/ Reproductive health | Yes | |
| J. Mhoma | | | Zoonoses | Yes | |
| S. Chiduo | KCMC | National Institute of Health-US | HIV/AIDS | Yes | |
| G. Kagaruki | NIMR | | Malaria | Yes | No |

Project Title

- 44) Clinical trial of standardized herbal preparations and nutritional supplements for efficacy and safety for treatment and care of HIV/AIDS in Tanzania
 - 45) Common mental disorder among patients at a hospital in rural Tanzania validation and assessment
 - 46) Common mental health problems in Muheza Hospital: Ammendment

 - 47) Comparison of HIV related neuropathy in ART and ART naive patients at Bugando Medical Centre HIV/AIDS clinic
 - 48) Determinants of user satisfaction of patients requiring treatment for incomplete abortion: is manual vacuum aspiration or misoprostol the more user-friendly method in a poor resourced rural setting?
 - 49) Determination of aflatoxins in commercial nutrition flour known as 'Unga wa Lishe)

 - 50) Developing and maintaining kilombero and ulanga anti-retroviral cohort at St. Francis District Designated Hospital in Ifakara, Tanzania
 - 51) Domestic violence and rights movements in Tanzania: Cross cultural comparisons and lessons from around the world
 - 52) Drug option for Intermittent preventive, treatment for malaria in infants in an area with high resistance to sulfadoxine pyrimethamine and evaluation of short and long acting antimalarial drugs: Ammendment
 - 53) Drug option for intermittent resistance to sulfadoxine pyrimethamine and evaluation of short and long acting antimalaria drugs: Ammendment
 - 54) East Africa congenital hypothyroidism

 - 55) Effect of an intensified patient-specific tuberculosis diagnostic strategy on treatment decisions by physicians caring adults and children with suspected pulmonary TB in the Kilimanjaro Region of Northern Tanzania
 - 56) Effect of HIV on malaria treatment outcome among under five children in selected hospitals in Tanzania
 - 57) Effect of improved food storage and preparation facilities on protein calorie malnutrition in adolescents in Tanzania
 - 58) Effective basic oral care services on oral quality of life primary school children in Kilwa District, Tanzania
 - 59) Effects of antiretroviral for HIV on African health systems, maternal and child health
 - 60) Efficacy and safety of rectal artesunate in paediatric patients: a randomized controlled study for treatment of malaria in infants in an area with high transmission
 - 61) Efficacy of foodlet (AFYA) in improving nutritional status of HIV positive pregnant women 2007/2008
 - 62) Efficacy of foodlet in improving Nutritional status of 6-12 months aged children in Temeke District
 - 63) Electronic nose for the diagnosis of tuberculosis: Ammendment
-

| Investigator | Institution | Funding agent | Subject | Alignment with National Priorities? | Was it implemented? |
|---------------|---|--|---|-------------------------------------|---------------------|
| Z. Mbwambo | ITM/MUHAS | TACAIDS | Traditional Medicine/ Nutrition/HIV/AIDS | Yes | |
| T. Nordgreen | Hydom | | Mental Health | Yes | |
| K. Marwin | University of Edinburgh/MUHAS | | Mental Health | Yes | |
| S. Kaluvya | BUGANDO | | HIV/AIDS | Yes | |
| R. Unkles | Lindi Regional Hospital | TGPSH | Health Systems/ Reproductive Health | Yes | |
| M.J. Mtenga | Government Chemist Laboratory Agency | HRUTF | Nutrition | Yes | |
| M. Stoekle | | | HIV/AIDS | Yes | |
| F. Myamba | | | Socio- cultural/Injuries | Yes | |
| R. Gosling | Joint Malaria Programme (NIMR- Tanga) | Bill and Melinda Gates Foundation | Malaria | Yes | |
| R. Gosling | Joint Malaria Programme(NIMR- Tanga) | Bill and Melinda Gates Foundation | Malaria | Yes | |
| B.S. Tamim | MNH | Berlin Screening centre & European society of Pediatric Endocrinology (ESPE) | Nutrition | Yes | |
| L. Msuya | KCMC | National Insitute of Health-US | Tuberculosis | Yes | |
| A. Mziray | NIMR | NIMR | Malaria/HIV | Yes | Yes |
| D. Esernio | New York | | Nutrition | Yes | |
| M.O. Kijakazi | NIMR | Norwegian State (University of Bergen) | Oral Health | Yes | |
| H. Masanja | IHI | Europeen Commision FP6 | HIV/ Maternal and Child Health | Yes | |
| Z. Mrango | NIMR | Drug Neglected Disease Initiative (DNDI) | Malaria | Yes | |
| E. Kweka | SUA | Belgian Technical Cooperation &UNICEF | Nutrition/ HIV | Yes | |
| D.K. Kejo | SUA | | Nutrition | Yes | |
| R. Reiter | MMRP | European Commision | Tuberculosis | Yes | |

Project Title

- 64) Enhancement of sustainable productivity of fish in Lake Victoria through control of pollutants with emphasis on endocrine disruptors and microbial pathogens
 - 65) Epidemiological studies on human papilloma virus
 - 66) Epidemiology of influenza A viruses in Tanzania: Ammendment
 - 67) Epidemiology toward prevention and control of Human African Trypanosomiasis in western Tanzania
 - 68) Evaluating the potential of zooprophylaxis as a malaria control strategy in Tanzania: do livestock influence malaria mosquito survival, reproduction and transmission potential
 - 69) Evaluation of adherence to highly active antiretroviral therapy in adult patients with HIV/AIDS attending Mbeya Referral Hospital, Tanzania
 - 70) Evaluation of community-based misoprostol use for postpartum haemorrhage in Kigoma, Tanzania
 - 71) Evaluation of DawaPlus long lasting net against *Anopheles gambiae*, *An. funestus* and *Culex quinquefasciatus* in experimental huts in Tanzania
 - 72) Evaluation of Netprotect long lasting net against *Anopheles gambiae*, *Anopheles funestus* and *Culex quinquefasciatus* in experimental huts in Tanzania: Ammendment
 - 73) Evaluation of preventive measures against malaria as practiced by western visitors to Tanzania with special focus on doxycycline chemoprophylaxis
 - 74) Evaluation of the biodemograph of malaria, filarial and arbovirus vectors in the Kilombero valley Tanzania
 - 75) Evaluation of the efficacy of cassava bean composite supplementary snack improving the nutritional status of primary school children
 - 76) Evaluation of the equity implications of the exemption and waiver mechanisms in Public Health Facilities
 - 77) Evaluation protocol: cost of comprehensive HIV Treatment at out-patient clinics in Tanzania
 - 78) Experiences related to quality of the life in persons living with spinal cord injury in the community following rehabilitation in Tanzania
 - 79) Experimental hut evaluation of mosquito behavior modifying compounds and novel insecticides for the control of malaria vector mosquitoes
 - 80) Exploring rumors concerning with blood drawing in the phase III clinical trial of the vaginal microbicide in Mwanza, Tanzania
 - 81) The cost Effectiveness of HIV/AIDS Interventions in Hydrom, Tanzania: Extension of ethical clearance
 - 82) Factors associated with virologic failure and suppression in Tanzania children with HIV-1 infection receiving highly active antiretroviral therapy
 - 83) Factors contributing to antiretroviral therapy Non-adherence among people living with HIV/AIDS attending care and treatment clinic in private hospitals within Dar es Salaam Region
 - 84) Factors influencing the implementation of prevention of mother to child transmission of HIV programmes: the situation at rural health facilities of Mbeya Region
 - 85) Feasibility and outcome of a combination ARV prophylaxis regimen according to PMTCT guidelines of Tanzania in Mbeya Region, Tanzania
-

| Investigator | Institution | Funding agent | Subject | Alignment with National Priorities? | Was it implemented? |
|------------------|--|---|--------------------------------------|-------------------------------------|---------------------|
| R.H. Mdegela | SUA | | Nutrition/Zoonoses | Yes | |
| J. Chungalucha | NIMR | GlaskoSmithKline | Cancer/Reproductive Health | Yes | |
| L. Mboera | NIMR | USAID/University of Minnesota | Zoonosis/Avian Influenza | Yes | Yes |
| S. Kibona | NIMR | WHO | Trypanosomiasis | | Yes |
| H. Ferguson | University of Glasgow (UK) | David Philips Fellowship | Malaria | | |
| M. Mabula | MMRP | | HIV/AIDS | | |
| G. Mbaruku | IHI | | Reproductive Health/ Maternal Health | | Yes |
| S. Magesa | NIMR | WHOPEs, Geneva | Malaria/ Lymphatic filariasis | | Yes |
| S. Magesa | NIMR | WHOPEs, Geneva | Malaria/LF | | Yes |
| V. Wiketye | NIMR | Not done | Malaria | | |
| T. Russel | | | Malaria/LF/ Arboviruse | | |
| A. Sadick | SUA | | Nutrition | | |
| V. Munishi | SUA | | Health Systems (Financing) | | |
| N. Menzies | CDC | | HIV/AIDS | | |
| L.M. Bunde | University of the Western Cape, South Africa | | Injuries | | |
| R. Tanya | Research Training Fellow | Gates Grand Challenges/CDC/Wageningen University | Malaria | | |
| L. Shelley | NIMR | Fogarty Africa International & Johns Hopkins University | Socio-cultural | | |
| B. Robberstard | Hydom | | HIV/AIDS | | |
| M. Blandina | KCMC | Duke Centre for AIDS Research | HIV/ Socio-cultural | | |
| M. Napandilwa | | | HIV/Socio-cultural | | |
| M. Mayige | NIMR | HRUTF | Health Systems/HIV | | |
| G. Zwingenberger | Charite University (Germany) | HRUTF | HIV/AIDS | | |

Project Title

- 85) Feasibility and outcome of a combination ARV prophylaxis regimen according to PMTCT guidelines of Tanzania in Mbeya Region, Tanzania
 - 86) Feasibility study and pilot efficacy trial of flash-heated breast milk to reduce pediatric HIV
 - 87) Field studies of a dry blood spot nucleic amplification method for infant HIV diagnosis and for HIV/RNA concentration determination in Tanzania
 - 88) Genetics of albinism
 - 89) Global traditions and Tanzanian Medicines
 - 90) Health impact study of Halopure® water bird drinking water system in Tanzania
 - 91) Health workforce competence and workplace Assessment of deliveries: improvement the workplace
 - 92) Health-related quality of life and needs of care and support among adult Tanzanians with cancer
 - 93) HIV infection in women infected with human papilloma virus and those with squamous intraepithelial lesions in Tanzania
 - 94) HIV vulnerability and HIV prevention needs among men who have sex with men in Tanzania
 - 95) HIV-1 prevalence cohort retention and host genetics and viral diversity in high risk cohorts in East Africa and Thailand
 - 96) HIV-disclosure and adherence among HIV-seropositive women in Tanga, Tanzania
 - 97) How to feed an infant: exploring HIV positive mothers and nurses experiences with prevention of mother-to-child transmission of HIV programmes in Babati and Haydom, Tanzania
 - 98) Hyperphenylalaninemia in cerebral malaria: Amendment
 - 99) Identification of the priority research questions within the areas of health financing, human resources for health and the role of the non-state sector
 - 100) Identify optimal models of HIV care approaches in sub-Saharan Africa
 - 101) Identifying barriers to ART initiation among eligible patients in Tanzania
 - 102) Identifying venues and strategies to prevent HIV and violence
 - 103) Immunology and epidemiology of interaction between Plasmodium falciparum and human host
 - 104) Impact on the incidence of malaria through the use of mosquito repellent plants
 - 105) Implementation of prevention of mother-to child transmission of HIV and maternal syphilis screening and treatment in Mwanza Region: Uptake and challenges
 - 106) Improvement of mass drug administration strategy for lymphatic filariasis in urban areas
 - 107) Improving the quality and continuity of care for children using computerized decision support on mobile devices
 - 108) Infectious disease history micronutrient status and cell mediated immunity among children in Kilimanjaro Tanzania
-

| Investigator | Institution | Funding agent | Subject | Alignment with National Priorities? | Was it implemented? |
|--------------------|-----------------------------------|--|----------------------------------|-------------------------------------|---------------------|
| G. Zwingenberger | Charite University (Germany) | HRUTF | HIV/AIDS | | |
| D. Ash | University Research Co. LLC (DSM) | DANIDA | HIV/Nutrition | | |
| J. Shao | KCMC | | HIV | | |
| J. Brilliant | University of Arizona (USA) | University of Arizona | | | |
| L. Stacey | Cornell University | Cornell University | Health systems | | |
| Esther Mbutolwe | NIMR | Helosource (USA) | Water hygiene | | |
| E. Hizza | Universty Research Co LLC (DSM) | | Health Systems (Human resources) | | |
| L.V. Essen | | | Health Systems/ Cancer | | |
| O. Achieng | KCMC | DUKE University + David/Margaret funding | HIV/AIDS and Cancer | | |
| M. Kare | University of Oslo | University of Oslo | HIV/AIDS | | |
| M. Robb | MMRP | | HIV/AIDS | | |
| L.F. Bohle | | | HIV/AIDS | | |
| A. Blystad | University of Bergen | Research Council of Norway | HIV/AIDS | | |
| E.Mwaikambo | HKMU | The Division of Microbiology and Infectious Diseases | Malaria | | |
| G. Munishi | University of Dar es Salaam | Alliance for Health Policy & systems Research (Alliance) | Health Systems/Policy | | No |
| N. Denis | ICAP | Columbia University | HIV/AIDS | | Not started yet |
| G. Magdalizi | Columbia University | Columbia University | HIV/AIDS | | |
| J. Mbwambo | Muhimbili National Hospital | | HIV/AIDS | | |
| A. Rutta | NIMR | AMANET | Malaria | | |
| S. Moore/ E. Kweka | IHI | Population Service International | Malaria | | |
| R. Balira | NIMR | | HIV/AIDS | | |
| E. Mwakitalu | NIMR | WHO | Lymphatic filariasis | | |
| O. Mukasa | IHI | Rockefeller Foundation through Harvard University | Health systems | | |
| W. Katherine | University of Washington | | Nutrition/Infection | | |

Project Title

- 109) Integrated malaria mosquito control trial in Tanzania
 - 110) IPM 015: A double-blind, randomized, placebo-controlled phase I/II study to evaluate the safety of intravaginal matrix ring with dapivirine for the prevention of HIV infection in Healthy HIV-negative women
 - 111) Is beta radiation better than fluorouracil as an adjunct for trabeculectomy surgery?
 - 112) Is misoprostol a safe alternative to manual Vacuum aspiration in pregnancy failure in a low resource setting
 - 113) Lay people knowledge perception and practices regarding the transmission and management of human and Porcine cysticercosis in Mbeya rural District of Tanzania
 - 114) Legal and ethics aspects of biomedical research in Tanzania, Uganda and Malawi
 - 115) Long-term studies of conservation and rural development strategies in Tanzania (C.Packer)
 - 116) Malaria and antimalarial drugs use in schools in Kibaha District, Coast Region, Tanzania
 - 117) Mapping of health innovation systems in Tanzania
 - 118) Materially, structures and ideology -the life situation of orphans in Bagamoyo District, Tanzania
 - 119) Measles antibody seroprevalence rates among children and adolescents aged 2-18 years from a general population cohort in Mbeya Region
 - 120) Medical ethics as part of quality management
 - 121) Microbicide prophylaxis against transmission of HIV and genital herpes in Tanzania
 - 122) Monitoring and evaluation of neglected tropical diseases in five regions of Tanzania
 - 123) Monitoring and evaluation of the malaria medium term strategic plan June 2008
 - 124) Nasopharyngeal carriage of streptococcus pneumoniae in Tanzanian children with HIV/AIDS and in their primary caregivers
 - 125) Neurological disorders with emphasis on epilepsy in the catchments areas of Haydom Lutheran Hospital Arusha Region, northern Tanzania: Amendment
 - 126) Occupational health of informal metal workers in Dar es Salaam
 - 127) Orphans and vulnerable children targeted evaluation in Tanzania: Amendment
 - 128) Part of multi-country health impact evaluation of the scale-up to fight HIV/AIDS, TB and malaria: special reference to the Global Fund
 - 129) Pharmaceutical philanthropy and global health on anthropological study of practices and values shipping drug donation programmes
 - 130) Phase II determinants of health care utilization in Kigoma Region Tanzania
-

| Investigator | Institution | Funding agent | Subject | Alignment with National Priorities? | Was it implemented? |
|---------------|---------------------------------|---|--|-------------------------------------|---------------------|
| L. Mboera | NIMR | Sumitomo Co. | Malaria control | | Yes |
| G. Masenga | KCMC | International Partnership for microbicides | HIV/ AIDS | | |
| K. Dhalla | CCBRT Hospital | | | | |
| H. Beekhuizen | Sokoine Regional Hospital/Lindi | | Maternal Health | | |
| K. Rose | | | Neglected Tropical Disease (Cysticercosis) | | |
| R.N. Nwabueze | University of Southampton | Leverhulme Trust UK. | Health Systems | | |
| C. Packer | Hydom | USAID | Environment? | | |
| S. Nsimba | MUHAS | | Malaria | | |
| L. Mboera | NIMR | African Technical and Policy Studies | Health Systems | | Yes |
| S. Ragnhild | Lesja Norway | Norwegian Studentloan Bank. | Orphans | | |
| Y. Mwasubila | MMRP | | Measles | | |
| E. Swai | University of Heidelberg | University of Heidelberg | Health Systems | | |
| Bergstom | | | HIV/AIDS | | |
| U. Mwingira | NIMR | SCI Imperial College | Neglected Tropical Diseases | | |
| A. Mwita | MoH | MoH/WHO /Italian Co-operation/Global Fund/USAID | Malaria | | |
| G. Mtove | NIMR | Wyeth Pharmaceuticals | HIV/AIDS | | |
| A. Mwinule | | | Epilepsy | | |
| F. Kessy | | | Occupational health | | |
| F. Nyangara | Tulale University | Measure Evaluation | Orphans/Vulnerable children | | |
| B. Maegga | NIMR | Global Fund | Health Systems (malaria, tuberculosis, HIV/AIDS) | | Yes |
| A. Samkyi | | | Socio-cultural | | |
| M. Kruger | University of Michigan | University of Michigan Global Health Research Training Initiative | Health Systems | | |

Project Title

- 131) Pilot of a hospital based surveillance system for detection of severe malaria disease and other serious morbidity in children aged 2 months to 4 years that will support the implementation of a phase III multi-centre efficacy trial of GSK, Biologicals candidate malaria vaccine, RTS,S/ASOIE
 - 132) Population based monitoring of HIV drug resistance emerging in adults during treatment and related programme factors in sentinel ART sites in Tanzania
 - 133) Prevalence clinical features and clinical outcome of cryptococcal meningitis among HIV positive patients admitted in medical wards at Mbeya Referral Hospital 1st June 2006 to 31st May 2007
 - 134) Pro-inflammatory cytokine levels in amniotic fluid in Tanzanians compared to Dutch health pregnant women who subsequently give birth to healthy newborns
 - 135) Rapid participatory appraisal of African Trypanosomiasis in Ugale Game Reserve and surrounding villages in north-west Tanzania
 - 136) Reduction of maternal mortality and neonatal deaths in Tanzania
 - 137) Retaining health professionals in a resource poor settings: assessing the availability, effectiveness and implementation gaps of non financial incentive regimens in Tanzania
 - 138) Rethinking safe mother-and childhood in the era of ART: the impact of antiretroviral on reproductive health care practices of patients and health care professionals in Tanzania
 - 139) Review of antiretroviral treatment policy for refugees in Tanzania: cases study
 - 140) Revisiting head teacher's perspectives on school leadership development in Tanzania: a survey study of twenty new heads of schools in contextually different state secondary schools in Dar es Salaam Region
 - 141) Sexual and gender-based violence against hotel and bar workers in Mwanza City Tanzania
 - 142) Sexual behaviors and attitudes towards HIV in urban and rural tribes and Muslim Tanzania
 - 143) Site preparedness and on-going community activities for a pre-exposure prophylaxis clinical trial
 - 144) Situation analysis for circumcision in Tanzania
 - 145) Social and contextual determinants of male heterosexual HIV risk behavior in Africa
 - 146) Spatial variation malaria risks in a small area with different transmission intensities, north-eastern Tanzania
 - 147) Strategies to prevent blinding trachoma: Study 3: Impact of mass azithromycin treatment on biomarkers for disease progression
 - 148) Strategies to prevent blinding trachoma: Study I: Case control study of trachomatous conjunctival scarring
 - 149) Strategies to prevent pregnancy associated malaria
 - 150) Strategies to prevent trachoma: Study 2: Pathophysiology of progress trachomastous conjunctival scarring
 - 151) Strengthening appointment and patient tracking systems for patients on antiretroviral therapy in Tanzania: a strategy to achieve optimal adherence to ART
-

| Investigator | Institution | Funding agent | Subject | Alignment with National Priorities? | Was it implemented? |
|----------------|--|--|--------------------------------|-------------------------------------|---------------------|
| J. Lusingu | NIMR | GSK Biologicals | Malaria | | Yes |
| R. Swai | MoH | WHO+CDC | HIV/AIDS | | |
| J. Masanyika | University of London | Walter Reed HIV Care and Treatment Program | HIV/ Cryptococcal meningitis | | |
| L.P.M. Pels | Netherlands | | Reproductive health | | |
| S. Kinunggh'hi | NIMR | University of Queensland (Australia) | HAT | | |
| G. Kusum | UN | | Maternal and Child Health | | |
| M. Munga | NIMR | SIDA Through Equinet | Health Systems/ Human Resource | | Yes |
| R. Mueller | Max-Planck-Institute for Social Anthropology/ German | GTZ | HIV/AIDS | | |
| S. Hobokela | London School of Hygiene | | | | |
| E. Foster | | | | | |
| J.E. Siza | NIMR | HRUTF | Gender violence | | No |
| Michelle | Washington University | Washington University | HIV/AIDS | | |
| S. Chiduo | KCMC | USAID | | | |
| M. Wambura | NIMR | ICAP/NIMR/MoH | Health Systems | | Yes |
| E. Mndeme | MUHAS | National Institute of Health (NIH) | HIV/AIDS | | |
| B.P. Mmbando | NIMR | | Malaria | | |
| P. Courtright | London School of Hygiene & Tropical Medicine | International Centre for Eye Health | Trachoma | | |
| P. Courtright | LSHTM | International Centre for Eye Health | Trachoma | | |
| J. Lusingu | NIMR | International Centre for Eye Health | Malaria | | |
| P. Courtright | LSHTM | International Centre for Eye Health | Trachoma | | |
| D. Sando | MoH | | Health Systems/ HIV | | |

Project Title

- 152) Study of misoprostol distribution antenatal clinics
 - 153) Study to determine the prevalence and severity of dental fluorosis and community psychosocial factors related to fluorotic teeth in fluoride endemic area of Tanzania
 - 154) Study to immunogenicity and safety of Glaxo-Smith Kline biologicals HPV vaccine GSK 580299 in health female subject aged 10-25 years
 - 155) Survey of sexual behaviors among the Maasai of Tanzania

 - 156) Susceptibility of Anopheles gambiae complex larvae to Temephos phytagri in Kyela flood plantations, southwest Tanzania
 - 157) Tanzania data synthesis project (Review of data triangulation)

 - 158) Tanzania National ARV outcomes evaluation
 - 159) TANZED-plus used for management of HIV/AIDS (Phase II clinical trials) (W.B.P. Matuja)
 - 160) Tuberculosis social marketing campaigns "Badilika" in Arusha Municipality, Kahama and Mufindi Districts
 - 161) The clinical use of ultra sensitive P24 antigen assays on dried whole blood spots for infant diagnosis and follow-up of HIV/AIDS as compared to DNA-PCR in rural area, Tanzania
 - 162) The detection of measles antibody seroprevalence rates in the Mbeya Region
 - 163) The effect of combined treatment for bacteria vaginosis with metranidazole and oral probiotic lactobacillus GR-1 and RC-14 on BV cure CD4 Level and HIV-1 shedding: a randomized placebo controlled trial in Mwanza City Tanzania
 - 164) The effect of type 2 diabetes on tuberculosis drug concentrations in Tanzanian tuberculosis patients
 - 165) The effectiveness of antenatal birth plans in increasing skilled care at delivery and after delivery in rural Tanzania
 - 166) The magnitude social cultural dynamics and relationships of sexual abuse early sexual debut and early pregnancies among in and out of school Tanzanian adolescents
 - 167) The postpartum interview study: a cohort study of recently pregnant women and their neonates in the Ifakara Demographic Surveillance Site

 - 168) The role of male partners and mother in-law in the prevention of mother to child transmission of HIV

 - 169) Three year (2004-2006) trends of Trachomata trichiasis surgery output in 10 districts in Tanzania description of determinant factors and recommendation for the way forward
 - 170) Toward assessing the effectiveness of the communication methods and materials used for the national VCT promotion campaign in Dar es Salaam and Lindi
 - 171) Treatment of retained placenta with misoprostol a double blind randomized controlled trial in Tanzania
 - 172) Typhoid fever in Sub-Saharan Africa: a proposal for typhoid fever surveillance in north-eastern Tanzania

 - 173) Understanding and improving malaria diagnosis in health facilities in Dar es Salaam, Tanzania: Amendment
 - 174) Use of anti-retroviral therapy without TB/HIV-AIDS control setting in Tanzania
-

| Investigator | Institution | Funding agent | Subject | Alignment with National Priorities? | Was it implemented? |
|----------------|-------------------------------|--|--|-------------------------------------|---------------------|
| G. Mbaruku | IHI | | Maternal Health | | |
| L. Mabelya | | | Oral health | | |
| W.J. Debora | LSHTM/NIMR | | Human Papiloma virus | | |
| A. Siegle | Emory University | US National Institute of mental Health (NIMH) | Socio-cultural | | |
| C. Mweya | NIMR | HRUTF | Malaria control | | No |
| M. Gasiorowicz | CDC | Federal Government | Health systems | | |
| G. Somi | MoH | CDC | HIV/AIDS | | |
| W. Matuja | MUHAS | | HIV/AIDS | | |
| B. Ndawi | Primary Health Care Institute | | Tuberculosis | | |
| L. Sokoine | NIMR | University of Oslo | HIV/AIDS | | |
| Y. Mwasubila | MMRP | | Measles | | |
| J. Chagalucha | NIMR | Lawsons Institute/Canada | HIV/AIDS | | |
| G. Kibiki | KCMC | | Tuberculosis Health | | |
| M. Magoma | LSHTM | WHO/HRP | Systems/Maternal Health | | |
| G. Mfinanga | NIMR | TACAIDS | Reproductive health | | |
| R. Nathan | Ifakara | CDC | Health Systems/Maternal and Child health | | |
| F. Eli | University of Bergen. | University of Bergen | HIV/AIDS | | |
| N.G. Mwakysusa | | | Trochoma | | |
| E. Mhondwa | MUHAS | | HIV/AIDS | | |
| Hellen Van | | | Maternal Health | | |
| G. Mtove | NIMR | Korea International Cooperation Agency (KOICA) | Typhoid fever | | |
| B. Genton | IHI | | Malaria | | |
| S. Egwaga | MoH | | TB and HIV/AIDS | | |

Project Title

- 175) Use of Moringa deifere as a supplement for people living with HIV/AIDS
 - 176) Use of skilled attendance at childbirth in rural Tanzania, the role of social and material inequalities
 - 177) Using prevalence data from sentinel antenatal care clinic survey for estimation in the general population in Mbeya, south-west Tanzania
 - 178) Validation of the TSPOT test in diagnosis of tuberculosis among acid fast bacillus smear negative pulmonary tuberculosis patients in Dar es Salaam, Tanzania
 - 179) Vector work for the Kilimanjaro IPTi
 - 180) WHO Human African Trypanosomiasis Specimen Bank
 - 181) Women's Health Project which is a feasibility study to assess potential cohort suitability for future microbicide trials in North West Tanzania
-

| Investigator | Institution | Funding agent | Subject | Alignment with National Priorities? | Was it implemented? |
|--------------|-------------|-----------------------------------|---------------------------------|-------------------------------------|---------------------|
| N. Makori | SUA | Government of Tanzania | HIV and Nutrition | | |
| A. Sidney | | | Health Systems/ Child Health | | |
| L. Maganga | MMRP | | Health Systems | | |
| G. Mfinanga | NIMR | Government of Tanzania | Tuberculosis | | |
| R. Gosling | KCMC | Bill and Melinda Gates Foundation | Malaria | | |
| S. Kibona | NIMR | WHO | HAT | | |
| S. Kapiga | LSHTM | EDCTP | HIV/AIDS | | |

Annex 5

Donor agency support to health research in Tanzania

| Year | Donor Name | Agency Name | Grant Type | Recipient | Commitments USD million | Disbursements USD million |
|-----------|------------|--------------|-----------------|---|----------------------------|------------------------------|
| 2006 | Austria | Reg | ODA Grants | Research | 0.0126 | 0.0126 |
| 2006 | Austria | ADA | ODA Grants | Research | 0.0439 | 0.0188 |
| 2007 | Austria | ADA | ODA Grants | NGO | Cofinancing | 0.0164 |
| 2008 | Canada | IDRC Project | Funding | East African Community | | 0.1270 |
| 2007-2008 | Canada | IDRC Project | Funding | Research | 0.0179 | |
| 2007-2008 | Canada | IDRC | Project Funding | Economic and Social Research Foundation | 0.2415 | |
| 2007 | Canada | IDRC Project | Funding | EAC Health Desk | 0.1652 | |
| 2006-2007 | Canada | IDRC | Project Funding | Ifakara Health Research and Development Center | 0.2698 | |
| 2005-2008 | Canada | IDRC | Project Funding | National Institute for Medical Research | 0.3608 | |
| 2005-2006 | Canada | IDRC | Project Funding | Tumaini University | 0.3213 | |
| 2005-2006 | Canada | IDRC | Project Funding | Research | 0.2364 | |
| 2004-2006 | Canada | IDRC | Project Funding | Tanzania Food and Nutrition Center | 0.2991 | |
| 2004-2006 | Canada | IDRC | Project Funding | Sokoine University of Agriculture | 0.2981 | |

| Channel of Delivery Name | Project Reference | Project Description | Source | Notes |
|--|---|---|---|-----------------------------------|
| Tierärzte ohne Grenzen | Assistance Activities in Pakistan - South Asia Earthquake 2005 | Sichere Milch für Tanzania - Entwicklung einer lebensmitteltechnischen Untersuchungsmethode für Zoonoserreger | http://stats.oecd.org/qwids/ | |
| Veterinärmedizinische Universität Wien | NGO cofinancing: research project for milk production in Tanzania | NRO-Kofinanzierungsprojekt: Sichere Milch für Tanzania | http://stats.oecd.org/qwids/ | |
| Veterinärmedizinische Universität Wien | NGO cofinancing: research project for milk production in Tanzania | NRO-Kofinanzierungsprojekt: Sichere Milch für Tanzania | http://stats.oecd.org/qwids/ | |
| | | Regional East African Community Health Policy Initiative (REACH): Commission, Governance and Architecture | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| University of Cape Town | | Strategies for health insurance for equity in less developed countries (SHIELD) | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| | | Research to policy support program on globalization, growth and poverty issues: pilot phase | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| | | REACH-Policy Initiative Phase II: Consolidating the Regional Hub and Developing | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| | | Health insurance to address health inequities in Ghana, South Africa and Tanzania | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| | | Community of Practice in Ecohealth (sub-Saharan Africa) - Phase 1 | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| | | Ecosystem approach to trachoma control in Northern Tanzania | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| UNU-MERIT | | Comparative study on the biopharmaceutical innovation systems in East Africa | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| | | Building Canadian Support for Global Health Research | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| | | Health risks and benefits of urban and periurban agriculture and livestock production | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |

| Year | Donor Name | Agency Name | Grant Type | Recipient | Commitments USD million | Disbursements USD million |
|-------------|---------------------|--------------------|-------------------|--|------------------------------------|--------------------------------------|
| 2004-2006 | Canada | IDRC | Project Funding | Ifakara Health Research and Development Center | 0.0599 | |
| 2007 | Denmark | | ODA Grants | Research | | 1.6000 |
| 2008 | Denmark | | ODA Grants | Research | | 3.7000 |
| 2006 | European Commission | EDCTP | Project Funding | Bombo Regional Hospital | | |
| 2006 | European Commission | EDCTP | Project Funding | Kilimanjaro Christian Medical Center | | |
| 2006 | European Commission | EDCTP | Project Funding | Kilimanjaro Christian Medical Center | | |
| 2006 | European Commission | EDCTP | Project Funding | Mbeya Medical Research Programme | | |
| 2006 | European Commission | EDCTP | Project Funding | Mbeya Medical Research Programme | | |
| 2006 | European Commission | EDCTP | Project Funding | Muhimbili University of Health and Allied Sciences | | |
| 2006 | European Commission | EDCTP | Project Funding | National Institute for Medical Research | | |
| 2006 | European Commission | EDCTP | Project Funding | National Institute for Medical Research | | |

| Channel of Delivery Name | Project Reference | Project Description | Source | Notes |
|--------------------------|-------------------|---|---|--------------------------------|
| | | Development of personal data assistant (PDA) for household surveys in demographic surveillance systems (Tanzania) | http://idris.idrc.ca/app/Search | exchange rate used USD 0.80574 |
| | | | DANIDA Headquarters | |
| | | | DANIDA Headquarters | |
| | | Back-up with Combivir (AZT/3TC) or single dose Truvada (FTC/TDF) in order to avoid Non Nucleoside Reverse Transcriptase Inhibitor (NNRTI) resistance after single dose Nevirapine for the prevention of mother-to-child | Health Research for Action - T. van der Heijden | |
| | HIV/AIDS | Capacity development and strengthening in preparation for HIV vaccine trials in Tanzania and Burkina Faso | Health Research for Action - T. van der Heijden | |
| | | Improving the balance between efficacy and development of resistance in women receiving single dose nevirapine for the prevention of mother-to-child transmission in Tanzania & Zambia | Health Research for Action - T. van der Heijden | |
| | HIV/AIDS | African-European HIV Vaccine Development Network | Health Research for Action - T. van der Heijden | |
| | HIV/AIDS | HIV vaccine trial capacity building in Tanzania and Mozambique by continued exploration of optimal DNA priming and MVA boosting strategies | Health Research for Action - T. van der Heijden | |
| | HIV/AIDS | HIV vaccine trial capacity building in Tanzania and Mozambique by continued exploration of optimal DNA priming and MVA boosting strategies | Health Research for Action - T. van der Heijden | |
| | | Back-up with Combivir (AZT/3TC) or single dose Truvada (FTC/TDF) in order to avoid Non Nucleoside Reverse Transcriptase Inhibitor (NNRTI) resistance after single dose Nevirapine for the prevention of mother-to-child | Health Research for Action - T. van der Heijden | |
| | HIV/AIDS | HIV vaccine trial capacity building in Tanzania and Mozambique by continued exploration of optimal DNA priming and MVA boosting strategies | Health Research for Action - T. van der Heijden | |

| Year | Donor Name | Agency Name | Grant Type | Recipient | Commitments USD million | Disbursements USD million |
|-------------|---------------------|--------------------|-------------------|--|------------------------------------|--------------------------------------|
| 2006 | European Commission | EDCTP | Project Funding | National Institute for Medical Research | | |
| 2007 | European Commission | EDCTP | Project Funding | African Malaria Network Trust | | |
| 2007 | European Commission | EDCTP | Project Funding | African Malaria Network Trust | | |
| 2007 | European Commission | EDCTP | Project Funding | Ifakara Health Research and Development Center | | |
| 2007 | European Commission | EDCTP | Project Funding | Research | | 1.6463 |
| 2007 | European Commission | EDCTP | Project Funding | National Institute for Medical Research | | |
| 2007 | European Commission | EDCTP | Project Funding | National Institute for Medical Research | | |
| 2007 | European Commission | EDCTP | Project Funding | National Institute for Medical Research | | |
| 2007 | European Commission | EDCTP | Project Funding | National Institute for Medical Research | | |
| 2007 | European Commission | EDCTP | Project Funding | University of Dar es Salaam | | |
| 2007 | Ireland | Irish Aid | Project Funding | Ifakara Health Institute | | 0.2462 |

| Channel of Delivery Name | Project Reference | Project Description | Source | Notes |
|--------------------------|----------------------------|--|---|--------------------------------|
| | Research capacity | Capacity development and strengthening in preparation for HIV vaccine trials in Tanzania and Burkina Faso | Health Research for Action - T. van der Heijden | |
| | Learning | Continuation and expansion of web based learning platform to more courses | Health Research for Action - T. van der Heijden | |
| | Research capacity | Fostering research capacity, networking and project management through phase I-IB clinical trials of candidate malaria vaccine GM22 | Health Research for Action - T. van der Heijden | |
| | Malaria | Evaluation of alternative antimalarial drugs to sulfadoxine-pyrimethamine for intermittent preventive treatment in pregnancy (IPTp) in the context of insecticide treated nets | Health Research for Action - T. van der Heijden | |
| | Active detection of Active | Tuberculosis (ADAT), Tanzania Active detection of Active Tuberculosis (ADAT), Tanzania | http://stats.oecd.org/qwids/ | |
| | Learning | Continuation and expansion of web based learning platform to more courses | Health Research for Action - T. van der Heijden | |
| | IRBs | Establishment of a local Institutional Review Board (IRB) in Mwanza, Tanzania and strengthen collaboration between the local and the national IRBs | Health Research for Action - T. van der Heijden | |
| | Ethics | Strengthening ethical standards and practices in the protection of participants in health research in Tanzania | Health Research for Action - T. van der Heijden | |
| | Malaria | Safe and efficacious artemisin-based combination treatments for African pregnant women with malaria | Health Research for Action - T. van der Heijden | |
| | Learning | Continuation and expansion of web based learning platform to more courses | Health Research for Action - T. van der Heijden | |
| | Health System | Establishment of Ifakara resource center: dissemination of health information, policy analysis and research, health policies implementation monitoring , district health observatory | Irish Aid Dar es Salaam | exchange rate used USD 1.33085 |

| Year | Donor Name | Agency Name | Grant Type | Recipient | Commitments USD million | Disbursements USD million |
|-------------|-------------------|--------------------|-------------------|--|------------------------------------|--------------------------------------|
| 2008 | Ireland | Irish Aid | Project Funding | Ifakara Health Institute | | 0.2662 |
| 2006 | Norway | NORAD | ODA Grants | Research | | 0.2009 |
| 2006 | Norway | NORAD | ODA Grants | Research | | 0.2811 |
| 2006 | Norway | NORAD | ODA Grants | Research | | 0.1030 |
| 2007 | Norway | NORAD | ODA Grants | Research | | 0.0041 |
| 2007 | Norway | NORAD | ODA Grants | Research | | 0.1268 |
| 2007 | Norway | NORAD | ODA Grants | Research | | 0.0095 |
| 2006 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.0244 |
| 2006 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.3665 |
| 2006 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.2875 |
| 2006 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.9210 |
| 2007 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.1492 |
| 2007 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.2043 |
| 2007 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.5142 |

| Channel of Delivery Name | Project Reference | Project Description | Source | Notes |
|--|---|--|---|--------------------------------|
| | Health System | Establishment of Ifakara resource center: dissemination of health information, policy analysis and research, health policies implementation monitoring , district health observatory | Irish Aid Dar es Salaam | exchange rate used USD 1.33086 |
| SIU - Senter for internasjonalsisering av hoyere utdanning | Health Systems Research | Health Systems Research and Health Promotion in Relation to Reproductive Health in Tanzania | http://stats.oecd.org/qwids/ | |
| SIU - Senter for internasjonalsisering av hoyere utdanning | HIV/AIDS | Gender, generation and communication in times of AIDS The potential of 'modern' and 'traditional' institutions | http://stats.oecd.org/qwids/ | |
| SIU - Senter for internasjonalsisering av hoyere utdanning | Occupational diseases | Occupational respiratory diseases among male and female workers in dusty industries in Tanzania | http://stats.oecd.org/qwids/ | |
| SIU - Senter for internasjonalsisering av hoyere utdanning | NUFU Agreement | Occupational respiratory diseases among male and female workers in dusty industries in Tanzania | http://stats.oecd.org/qwids/ | |
| SIU - Senter for internasjonalsisering av hoyere utdanning | NUFU Agreement | Health Systems Research and Health Promotion in Relation to Reproductive Health in Tanzania | http://stats.oecd.org/qwids/ | |
| SIU - Senter for internasjonalsisering av hoyere utdanning | NUFU Agreement | Health Systems Research and Health Promotion in Relation to Reproductive Health in Tanzania | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS Swe Inst | | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS:Malaria Tza | | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS:Repr Health Tza | | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS:TANSWED-HIV Tza | | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS:Repr Health Tza | Tza Research MUCHS:2004-8 MUCHS:Repr Health Tza | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS:Malaria Tza | Tza Research MUCHS:2004-8 MUCHS:Malaria Tza | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS:TANSWED-HIV Tza | Tza Research MUCHS:2004-8 MUCHS:TANSWED-HIV Tza | http://stats.oecd.org/qwids/ | |

| Year | Donor Name | Agency Name | Grant Type | Recipient | Commitments USD million | Disbursements USD million |
|-------------|-------------------|--------------------|-------------------|--|------------------------------------|--------------------------------------|
| 2007 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.0651 |
| 2007 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.3532 |
| 2007 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.1603 |
| 2007 | Sweden | Sida | ODA Grants | Muhimbili University of Health and Allied Sciences | | 0.4864 |
| 2006 | Switzerland | SDC | ODA Grants | Ifakara Health Institute | | 0.3500 |
| 2007 | Switzerland | SDC | ODA Grants | Ifakara Health Institute | | 0.3500 |
| 2008 | Switzerland | SDC | ODA Grants | Ifakara Health Institute | | 0.3500 |
| 2006 | United Kingdom | DFID | ODA Grants | Womens Dignity Project Strategic Grant Agreement | 0.7656 | 0.0889 |
| 2007 | United Kingdom | DFID | ODA Grants | Research | | 0.3055 |
| 1999 - 2006 | United Kingdom | DFID | Project Funding | Research | | 3.3572 |
| 2005 - 2010 | United Kingdom | DFID | Project Funding | Research | | 5.4383 |
| 2005 - 2010 | United Kingdom | DFID | Project Funding | Research | | 3.6252 |
| 2001 - 2006 | United Kingdom | DFID | Project Funding | Research | | 0.4200 |
| 2001 - 2009 | United Kingdom | DFID | Project Funding | Research | | 57.718 |
| 2005 - 2008 | United Kingdom | DFID | Project Funding | Research | | 29.0044 |
| 2006 - 2011 | United Kingdom | DFID | Project Funding | Research | | 34.8052 |

| Channel of Delivery Name | Project Reference | Project Description | Source | Notes |
|--------------------------|---|--|---|--------------------------------------|
| | Tza Research MUCHS:2004-8 MUCHS Swe Inst | Tza Research MUCHS:2004-8 MUCHS Swe Inst | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS:Repr Health Swe | Tza Research MUCHS:2004-8 MUCHS:Repr Health Swe | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS:Malaria Swe | Tza Research MUCHS:2004-8 MUCHS:Malaria Swe | http://stats.oecd.org/qwids/ | |
| | Tza Research MUCHS:2004-8 MUCHS:TANSWED-HIV Swe Tza Research | MUCHS:2004-8 MUCHS:TANSWED-HIV Swe | http://stats.oecd.org/qwids/ | |
| | Ifakara Health Research | Core funding | Cooperation Office SDC Dar es Salaam | |
| | Ifakara Health Research | Core funding | Cooperation Office SDC Dar es Salaam | |
| | Ifakara Health Research | Core funding | Cooperation Office SDC Dar es Salaam | |
| | Womens Dignity Project Strategic Grant Agreement | Advocay for Improved Health Rights of the Poor | http://stats.oecd.org/qwids/ | |
| Local / Regional NGOs | Womens Dignity Project Strategic Grant Agreement | Promote Equity and Accountability for girls and women's health | http://stats.oecd.org/qwids/ | |
| | Southampton Statistical Sciences Research Institute, University of Southampton | Using Research to Inform Health Policy: Barriers and Strategies in Developing Countries | http://www.research4development.info/SearchResearchDatabase.asp | exchange rate used USD 1.45022 |
| | London School of Hygiene and Tropical Medicine | Consortium for Research on Equitable Health Systems (CREHS) | http://www.research4development.info/SearchResearchDatabase.asp | exchange rate used USD 1.45023 |
| | London School of Hygiene and Tropical Medicine | Programme for Research and capacity building on sexual and reproductive health and HIV in developing countries | http://www.research4development.info/SearchResearchDatabase.asp | exchange rate used USD 1.45024 |
| | Centre for Tropical Veterinary Medicine, University of Edinburgh | Investigating the impact of brucellosis on public health and livestock health and reproduction in Tanzania | http://www.research4development.info/SearchResearchDatabase.asp | exchange rate used USD 1.45025 |
| | Medical Research Council Clinical Trials Unit - UK | Microbicides to Prevent HIV infections - Microbicides Development Programme (MDP) | http://www.research4development.info/SearchResearchDatabase.asp | exchange rate used USD 1.45026 |
| | International AIDS Vaccine Initiative | International AIDS Vaccine Initiative | http://www.research4development.info/SearchResearchDatabase.asp | exchange rate used USD 1.45027 |
| | International Development Research Centre | Predicting malaria's changing course in East Africa | http://www.research4development.info/SearchResearchDatabase.asp | exchange rate used USD 1.45028 |

Funding agency support to health research in Tanzania

| Year | Funding Agency Name | Grant Type | Recipient | Commitments USD million | Disbursements USD million |
|------|---------------------------------|-----------------|-------------------------------|-------------------------|---------------------------|
| 2006 | Bill & Melinda Gates Foundation | Project Funding | African Malaria Network Trust | 4.1577 | |
| 2006 | Bill & Melinda Gates Foundation | Project Funding | Research | 9.9758 | |
| 2007 | Bill & Melinda Gates Foundation | Project Funding | Research | 12.0434 | |
| 2008 | Bill & Melinda Gates Foundation | Project Funding | African Malaria Network Trust | 0.5000 | |
| 2008 | Bill & Melinda Gates Foundation | Project Funding | African Malaria Network Trust | 0.5000 | |
| 2008 | Bill & Melinda Gates Foundation | Project Funding | Ifakara Health Institute | 2.9993 | |
| | Comic Relief | Project Funding | Ifakara Health Institute | 7.2500 | |
| 2006 | Rockefeller Foundation | Project Funding | Research | 0.3000 | |
| 2006 | Rockefeller Foundation | Project Funding | Research | 0.1750 | |

| Channel of Delivery Name | Project Reference | Project Description | Source | Notes |
|--|---------------------------|--|---|--------------------------------|
| | Malaria | Strengthen institutional capacities in health research ethics in Africa | http://www.gatesfoundation.org/grants/Pages/search.aspx | |
| Imperial College London | Neglected Diseases | Support development, implementation and evaluation of an integrated health package for poor populations in Burkina Faso, Niger and Tanzania | http://www.gatesfoundation.org/grants/Pages/search.aspx | |
| Johns Hopkins University | Neglected Diseases | Address recurrence of trichiasis following surgery and the likely trajectory of elimination of blinding trachoma under antibiotic coverage and frequency alternatives, through a research partnership working in Ethiopia, The Gambia and Tanzania | http://www.gatesfoundation.org/grants/Pages/search.aspx | |
| | Malaria | International conference on malaria in Africa | http://www.gatesfoundation.org/grants/Pages/search.aspx | |
| | Malaria | International conference on malaria in Africa | http://www.gatesfoundation.org/grants/Pages/search.aspx | |
| | Malaria | Demonstrate mode of action, spatial range, efficacy, user acceptability and cost-effectiveness of spatial repellents | http://www.gatesfoundation.org/grants/Pages/search.aspx | |
| | Maternal and child health | Investment and training to reduce child and maternal mortality and to improve the responsiveness of health services to the needs of local communities | http://www.comicrelief.com/how_your_money_helps/by_geography/flash/503 | exchange rate used USD 1.45022 |
| World Health Organization, Geneva, Switzerland | HIV/AIDS | Facilitate implementation of academic model for the prevention and treatment of HIV/AIDS electronic medical records system in Tanzania and Uganda | http://www.rockfound.org/grants/grants.shtml | |
| Lundy Foundation, Denver, CO, USA | HIV/AIDS | Evaluate the development and initial impact of a community-based children's center in Tanzania on the physical and psychosocial needs of HIV/AIDS orphans and other vulnerable children | http://www.rockfound.org/grants/grants.shtml | |

| Year | Funding Agency Name | Grant Type | Recipient | Commitments USD million | Disbursements USD million |
|-------------|----------------------------|-------------------|--|--------------------------------|----------------------------------|
| 2006 | Rockefeller Foundation | Project Funding | Tanzania Commission for Universities | 0.3600 | |
| 2007 | Rockefeller Foundation | Project Funding | Research | 0.0748 | |
| 2007 | Rockefeller Foundation | Project Funding | Research | 0.1398 | |
| 2007 | Rockefeller Foundation | Project Funding | Research | 0.1000 | |
| 2009 | Rockefeller Foundation | Project Funding | Research | 0.1000 | |
| 2006 | Wellcome Trust | Project Funding | Faculty of Veterinary Medicine, Morogoro | 0.1730 | |
| 2007 | Wellcome Trust | Project Funding | Research | 1.2158 | |
| 2007 | Wellcome Trust | Project Funding | Research | 0.0435 | |
| 2008 | Wellcome Trust | Project Funding | Research | 0.0435 | |
| 2008 | Wellcome Trust | Project Funding | Research | 0.0193 | |

| Channel of Delivery Name | Project Reference | Project Description | Source | Notes |
|---|-------------------------|--|---|--------------------------------|
| National Council for Higher Education, Kampala, Uganda | Education system | Collaborative project with the Kenya Commission for Higher Education and the Tanzania Commission for Universities to establish a common credit accumulation and transfer system for all universities in Kenya, Uganda and Tanzania | http://www.rockfound.org/grants/grants.shtml | |
| International Center for Tropical Agriculture, Cali, Colombia | Conference | Symposium on Innovations as key to the green revolution in Africa: Exploring the scientific facts, Arusha, Tanzania, September 2007 | http://www.rockfound.org/grants/grants.shtml | |
| Harvard University | Protocols management | Pilot project to evaluate effectiveness of using a software package deployed on handheld computers for adherence to integrated management of childhood illness protocols by primary health care workers in Tanzania | http://www.rockfound.org/grants/grants.shtml | |
| Union for African Population Studies, Accra, Ghana | Conference | Fifth African Population Conference, Arusha, Tanzania, December 2007 | http://www.rockfound.org/grants/grants.shtml | |
| Management Science for Health, Cambridge, MA, USA | Pharmaceutical services | Determine how accredited drug dispensing outlet associations can help ensure that drug sellers continuously provide quality medicines and pharmaceutical services for poor and vulnerable people in Tanzania | http://www.rockfound.org/grants/grants.shtml | |
| | Health management | Improvement of livelihoods of the rural poor through education on health management and marketing of free range local chickens | http://www.wellcome.ac.uk/Funding/Grants-awarded/WTX022348.htm | exchange rate used USD 1.45017 |
| London School of Hygiene and Tropical Medicine | Biomedical Resources | Upgrading demographic and biomedical database of the Kisesa HIV cohort study, Tanzania | http://www.wellcome.ac.uk/Funding/Grants-awarded/WTX022348.htm | exchange rate used USD 1.45020 |
| African Population and Health Research Center | Conference | Fifth African Population Conference, Arusha, Tanzania, December 2007 | http://www.wellcome.ac.uk/Funding/Grants-awarded/WTX022348.htm | exchange rate used USD 1.45021 |
| University of New Castle upon Tyne | | Facilitating a three way engagement between study communities, policy makers and researchers in stroke research in Tanzania | http://www.wellcome.ac.uk/Funding/Grants-awarded/WTX022348.htm | exchange rate used USD 1.45018 |
| University of Glasgow | | Establishing rabies surveillance systems in southern Tanzania | http://www.wellcome.ac.uk/Funding/Grants-awarded/WTX022348.htm | exchange rate used USD 1.45019 |

Annex 6

National Institute for Medical Research - Donor grants received for the period 2005 -2008

| Donor Description | Amount in USD |
|--|-------------------|
| (a) Research Grants | |
| CDC of USA | 7,924,167 |
| Global Fund | 3,064,174 |
| Macro International (NLFET) | 343,000 |
| DFID UK- (NLFET& Other) | 1,009,887 |
| Imperial College (NLFET & Other) | 720,789 |
| Bill and Melinda Gates Foundation (IPTi) | 379,730 |
| Gates Malaria Partnership (CEEMI Only) | 1,119,966 |
| DANIDA -ENRECA | 1,319,444 |
| EU- (STOPPAM,MAL, REACT& Other) | 1,613,187 |
| EDCTP (COMTRU) | 109,607 |
| AMANET (MSP3, Afro Immuno Assay) | 899,214 |
| OXFORD-Malaria Gen | 89,137 |
| VW Germany (Wolbachia) | 120,000 |
| MCTA | 307,371 |
| Wellcome Trust (Aquamat) | 500,000 |
| MVI (RTSS) | 820,416 |
| WHO | 529,699 |
| LSHTM | 848,248 |
| IRISH AID | 615,747 |
| MRC UK | 3,478,261 |
| Total Research Grants | 25,812,044 |
| (b) Building Grants | |
| Gates Malaria Partnership(GMP) -CEEMI Building | 359,265 |
| DFID -CEEMI Building | 207,664 |
| Gates Malaria Partnership-AMBRELA Tanga | 290,025 |
| CDC - NIMR Building HQ | 5,219,211 |
| MVI-RTSS Building Korogwe | 280,000 |
| Total Building Grants | 6,356,165 |
| TOTAL Grants a+b | 32,168,209 |

COHRED

Council on Health Research for Development

1-5 Route des Morillons

1211 Geneva, Switzerland

Tel + 41 22 591 89 00 - Fax + 41 22 591 89 10

E-mail: cohred@cohred.org

www.cohred.org