THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF HEALTH AND SOCIAL WELFARE

National Malaria Strategic Plan 2014–2020 Abridged Version

NATIONAL MALARIA CONTROL PROGRAMME

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TABLE OF CONTENTS

TABLE OF CONTENTS i
LIST OF FIGURES ii
LIST OF TABLES ii
FOREWORD i
ACKNOWLEDGEMENT ii
ACRONYMS iii
EXECUTIVE SUMMARY v
CHAPTER 1: BACKGROUND 1
Country Profile 1
Global Policy Documents and Initiatives 3
National Policy Documents 4
CHAPTER 2: *EPIDEMIOLOGICAL PROFILE OF MALARIA AND ITS CONTROL IN TANZANIA* 6
Malaria Epidemiology in Tanzania 6
Malaria Control Achievements 2008–2013 8
CHAPTER 3: NATIONAL MALARIA STRATEGIC PLAN 2014–2020 11
The process of developing the malaria strategic plan 11
Malaria Control Phases 11
Vision 12
Mission 12
Goal and Objectives 12
Component 1: Integrated Malaria Vector Control 13
Component 2: Malaria Diagnosis, Treatment, Preventive Therapies, and Vaccine 19
Component 3: Behaviour Change Communication and Advocacy 26
Component 4: Surveillance, Monitoring, and Evaluation 31
Component 5: NMCP Programme Management, Partnership Development, and Resource Mobilization 35
CHAPTER 4: STRATIFICATION AND MALARIA CONTROL STRATEGIC OPTIONS 39
Malaria Stratification 39
Strategic Options in Malaria Epidemiological Transmission Strata 40
Strategic Options in Malaria Control Operational Strata 41
Strategic Options in Vulnerable Population Strata 45
CHAPTER 5: IMPLEMENTATION ARRANGEMENTS 47
Administration and Management of NMCP 47
NMCP Governance and Coordinating Mechanisms 47

Implementation Mechanisms 52
APPENDIX 1. PERFORMANCE FRAMEWORK 54

LIST OF FIGURES

Figure 1: Tanzania: Administrative Setup 2
Figure 2: Percentage of Tanzania's Population at Various Classes of P. Falciparum Endemic Risk in 2000 and 2010 8
Figure 3. Malaria Control Phases and Timelines in Tanzania 12
Figure 4: Malaria Control in Malaria Free, Unstable, and Very Low Transmission Areas 40
Figure 5: Malaria Control in Low and Moderate Transmission Areas 40
Figure 6: Malaria Control in High Transmission Areas 41
Figure 7: Malaria Control in Urban Areas 41
Figure 8: Malaria Control in Districts in Advanced Sustained Control Phase 42
Figure 9: Malaria Control in Seasonal Transmission Areas 42
Figure 10: Malaria Control in Epidemic-Prone Districts 43
Figure 11: Malaria Control in Areas Resilient to Malaria Transmission Changes 43
Figure 12: Malaria Control in Areas with Insecticide Resistance 44
Figure 13: Malaria Control in Economic and Development Projects Areas 44
Figure 14: Malaria Control in Areas with Limited Access to Healthcare Services (Hard-to-Reach Areas) 45
Figure 15: NMCP Organogram 47
Figure 16: NMCP Governance Structure 48

LIST OF TABLES

TABLE 1: HEALTH FACILITIES IN MAINLAND TANZANIA, ACCORDING TO OWNERSHIP 3

FOREWORD

Despite the significant decrease in prevalence, malaria remains a major public health problem in Mainland Tanzania. It is a leading cause of morbidity and mortality, especially in children under five years of age and pregnant women. However, there is now better understanding about the variation in malaria risk throughout the country, which will enable the Government of Tanzania (GoT) through the Ministry of Health and Social Welfare (MoHSW) and its implementing partners to scale up efforts where most needed and maintain the gains that have been achieved so far. Tanzania is entering a new era of malaria control, with a realistic possibility to reduce malaria prevalence to less than 1% by 2020.

This new National Malaria Strategic Plan (NMSP) outlines the key technical and supporting strategies in the ongoing fight against malaria in the period 2014–2020. The strategies build on the lessons learned during the previous strategic planning period and new data on malaria risk. As Tanzania gradually will move from a malaria control phase to a malaria pre-elimination phase, surveillance will be more important than ever.

The plan has been developed to guide the implementation, coordination and monitoring of malaria activities of the GoT, regional and local government authorities, development partners, implementing organisations, academic institutions, and the private sector, in line with the "Three Ones" principle: one strategic plan, one coordinating mechanism and one monitoring and evaluation plan.

The MoHSW puts great value on a strong and well-coordinated partnership to achieve the goals and objectives of this strategic plan. I would like to thank all of our partners in the ongoing fight against malaria. It is my sincere hope that partners will consider this National Malaria Strategic Plan as a beginning to renewed commitment to partnership, its coordination and efficient and effective use of resources at our disposal.

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The MoHSW is grateful for the individual contribution of Robert Snow (KEMRI-Welcome Trust) for his enormous contribution in the development of the encyclopaedic *Epidemiological profile of Malaria and its Control in Tanzania* that has been used to shape some important sections of this document such as 100 years of malaria control in Tanzania (*Chapter 1*), Epidemiology of malaria in Tanzania (Chapter 2) and for the maps and bases for strata calculation (*Chapter 5*); Rosemary Lusinde (RTI) for her help in producing operational strata maps (*Chapter 5*); and Deus Ishenghoma (NIMR) for his inputs in the malaria parasite section (*Chapter 2*).

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Finally, the MoHSW would like to recognise the dedication and hard work of the members of regional and local government authorities, health facilities, civil society, private companies, and communities in translating the strategy into concrete actions to fight malaria.

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D. Mbando

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ACRONYMS

ACT	Artemisinin Combination Therapy
ADDO	Accredited Dispensing Drug Outlet
AIDS	Acquired Immunodeficiency Syndrome
ALMA	African Leaders Malaria Alliance
ALu	Artemether Lumefantine
AM	Antimalarial
AMFm	Affordable Medicine Facility for Malaria
ANC	Antenatal Clinic
BCC	Behaviour Change Communication
Bs	*Bacillus sphaericus*
Bti	*Bacillus thuringiensis var. israelensis*
CBO	Community based organisation
CCHP	Comprehensive Council Health Plan
CHAI	Clinton Health Access Initiative
CHMT	Council Health Information System
COMMIT	Communication and Malaria Initiative in Tanzania
CPT	Co-trimoxazole Preventive Therapy
CSR	Corporate Social Responsibility
CTC	Care and Treatment Centre
DFID	Department for International Development
DHIS	District Health Information System
DIS	Diagnostic information system
DMIFP	District Malaria IMCI focal person
DMO	District Medical Officer
DSS	Demographic Sentinel Surveillance
EM	Entomological Monitoring
EPI/IVD	Expanded Programme for Immunization/ Immunization and Vaccine Development
FANC	Focused Antenatal Care
FBO	Faith based organisation
GDP	Gross Domestic Product
GFATM	Global Fund AIDS Tuberculosis and Malaria
GMP	Good Manufacturing Practice
GPIRM	Global Plan for Insecticide Resistance Management
HIV	Human immunodeficiency virus
HMIS	Health Management Information System
ICCM	Integrated Community Case Management
IDSR	Integrated Disease Surveillance and Response
IEC	Information Education Communication
IHI	Ifakara Health Institute
ILS	Integrated logistic system
IMCI	Integrated Management for Childhood Illnesses
IMVC	Integrated Malaria Vector Control
IPTp	Insecticide Resistance Management in Pregnancy
IRM	Insecticide Resistance Management
IRMP	Insecticide resistance management plan
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Net
IVC	Integrated Vector Control
IVM	Integrated Vector Management
KEMRI	Kenya Medical Research Institute
LGA	Local Government Administration
LLIN	Long Lasting Insecticide Treated Net
LSM	Larval Source Management
M&E	Monitoring and Evaluation
MCP	Malaria Communication Plan
MDGs	Millennium Development Goals
MEEDS	Malaria Epidemic Early Detection System
MEEWS	Malaria Epidemic Early Warning System
MERG	Monitoring and Evaluation Reference Group
MFA	Malaria Free Areas
MIP	Malaria in Pregnancy
MKUKUTA	Mkakati wa Kuinua Uchumi na Kupunguza Umasikini Tanzania
NMSP	National Malaria Strategic Plan
MoFEA	Ministry of Finance and Economic Affairs
MoHSW	Ministry of Health and Social Welfare
mRDT	malaria rapid diagnostic test
MSD	Medical Store Departments
NACP	National AIDS Control Programme
NBS	National Bureau of Statistics
NEMC	National Environmental Management Council
NGO	Non-Governmental Organisation
NHLQATC	National Health Laboratory and Quality Assurance Training Centre
NIMR	National Institute for Medical Research
NMCP	National Malaria Control Programme
NMSC	National Malaria Steering Committee
NSGRP	National Strategy for Growth and Reduction of Poverty
PAMCA	Pan African Mosquito Control Association
PA*Pf*PR$_{2\text{-}10}$	Predicted adjusted *Plasmodium falciparum* Parasite Rate in children 2-10 years
PB	Pharmacy Board
PHLB	Private Health Laboratory Board
PMCTC	Prevention of Mother to Child Transmission
PMI	United States of America President's Malaria Initiative
PMORALG	Prime Minister Office Regional Administration and Local Government
PMU	Programme management unit
PPP	Private Public Partnership
PR	Parasite Rate
PSS	Pharmaceutical Service Section

PUDR	Progress Updates and Disbursement Requests
QA	Quality Assurance
QAACT	Quality Assured ACT
QC	Quality Control
RAS	Regional Administration Secretary
RBM	Roll Back Malaria
RCH	Reproductive and Child Health
RDT	Rapid Diagnostic Test
RHMT	Regional Health Management Team
RI	Research Institution
RMIFP	Regional Malaria IMCI focal person
RMO	Regional Medical Officer
s.l.	*Sensu lato*
s.s.	*Sensu stricto*
SDC	Swiss Development Cooperation
SFL	SMS for Life
SMC	Seasonal Malaria Chemoprevention
SME	Surveillance, monitoring and evaluation
SNP	School Net Programme
SOP	Standard Operation Procedure
SP	Sulphadoxine Pyrimethamine
TANAM	Tanzania National Malaria Movement
TBS	Tanzania Bureau of Standards
TDHS	Tanzania Demographic Health Survey
TFDA	Tanzania Food and Drug Authority
THMIS	Tanzania HIV/AIDS Malaria Indicator Survey
TNA	Training Needs Assessment
TNCM	Tanzania National Coordinating Mechanism
TNVS	Tanzania National Voucher Scheme
TPRI	Tropical Pesticides Research Institute
TSPA	Tanzania Service Provision Assessment
TWG	Technical Working Group
USAID	United States Agency for International Development
VCG	Vector Control Working Group
VPP	Voluntary Pooled Procurement
WHO	World Health Organisation
ZaMEP	Zanzibar Malaria Elimination Programme

EXECUTIVE SUMMARY

Background

According to the latest population census of 2012, Tanzania's population is estimated to be almost 45 million and is increasing by a million annually. The country has a varied geography and climate, ranging from tropical coastal lowlands, and is divided into 25 regions. The average annual gross domestic product (GDP) rate is 7%, but considerable variations exist in wealth distribution amongst the different socioeconomic quintiles.

The health system is organised according to a decentralized network of hospitals, health centres and dispensaries. There are currently over 6,500 healthcare facilities in the country, of which 79% are government run, 13% faith-based and voluntary, and 9% privately owned.

Malaria control started over a century ago during the German colonial administration. The largest successes have been achieved in the last decade with national scale up of new preventive strategies and improved quality and access to testing and treatment. Several global initiatives have shaped malaria control strategies over the years, including the Millennium Development Goals and the Roll Back Malaria Partnership. Key national policies that guide malaria planning include the National Health Policy, National Strategy for Growth and Reduction of Poverty, Third Health Sector Strategic Plan, as well as the ongoing Local Government Reform processes.

Current data suggests that Tanzania is currently under a malaria epidemiological transition, with 60% of the population are now living in hypo-endemic areas (parasitaemia 0 - <10 %), down from 30% in 2000. However, the climatic conditions remain favourable for transmission throughout almost the entire country, with close to 95% of Mainland Tanzania at risk.

National Malaria Strategic Plan 2014–2020

This National Malaria Strategic Plan covers the period of 2014–2020. The long-term **vision** is that Tanzania becomes a society free from malaria. The **mission** is to ensure that all Tanzanians have access to quality, effective, safe and affordable malaria interventions through timely and sustainable collaborative efforts with partners and stakeholders at all levels. The **goal** during this planning period is reduce the average country malaria prevalence from 10% in 2012 to 5% in 2016 and further in 2020 to less than 1%. The following five **strategic objectives** support this goal:

1. Reduce malaria transmission by scaling up and maintaining effective and efficient vector control interventions
2. Prevent the occurrence of severe morbidity and mortality related to malaria infection through the promotion of universal access to appropriate early diagnosis, prompt treatment and provision of preventive therapies and vaccines to vulnerable groups
3. Create an enabling environment in which individuals and household members are empowered to minimize their own malaria risk and seek proper and timely malaria treatment, if and when needed;
4. Provide timely and reliable information to assess progress in achieving established global and national targets, to ensure that resources are used in the most cost-effective manner and to account for investments made in malaria control
5. Ensure effective programmatic and financial management of malaria control interventions at all levels, implemented through effective and accountable partnerships, with adequate funding

The plan is divided in two strategic stages: the first period (2014-2016) will sustain the recent progress and achievements; and the second period (2017-2020) will consolidate the achievements and explore the feasibility to enter into a malaria pre-elimination phase in defined areas of the country.

Objectives and Strategies for Core Interventions

The 2014–2020 NMSP consists of five core interventions divided into the following different strategic approaches:

1. Integrated Malaria Vector Control (IMVC)
   - Ensure universal access of the population to LLINs in all transmission settings and control stages
   - Consolidate and expand IRS in epidemiologically and operationally suitable areas
   - Implement larviciding interventions in selected urban areas where breeding sites are few, fixed, and findable
   - Promote effective environmental management for malaria control amongst targeted communities
   - Continuously assess the evidence-base on IVC interventions and innovations and introduce new tools where and when feasible
2. Malaria diagnosis, treatment, preventive therapies and vaccines
   - Provide universal access to appropriate, quality and timely malaria diagnosis to all people with signs and symptoms of malaria
   - Provide universal access to appropriate, quality and timely treatment to all people who have malaria
   - Provide appropriate and effective services to reduce the risk of malaria infection and its complications among populations biologically and socioeconomically vulnerable to malaria
   - Ensure that commodities used in malaria patient care and prevention are consistently safe, quality assured and available at the points of care
   - Deploy appropriate malaria case management interventions in case of outbreaks and resurgence situations to reduce the risk of severe morbidity and mortality
3. Promotion of malaria prevention and curative services through information, education and communication
   - Reinforce and update knowledge amongst all community members in Tanzania about appropriate malaria prevention, testing and treatment and promote desired positive behaviours
   - Increase knowledge amongst vulnerable groups with elevated risk of malaria infection about their specific risk and the prevention and treatment options available to them
   - Influence social norms about healthy behaviours around malaria prevention and care, and encourage communities to initiate and implement community-based malaria control interventions
   - Create strong BCC public private partnership to maximize efforts, ensure consistency in approach, and avoid duplication
   - Raise the profile of malaria amongst policy and decision makers at all levels so that national, regional and district plans include appropriate interventions and sufficient budget to implement the malaria strategy
4. Surveillance and monitoring and evaluation (SME)
   - Improve quality, completeness, and timeliness of malaria indicators within the routine health information system
   - Establish a comprehensive framework for collecting, processing and storing essential malaria indicators from periodic service delivery and programmatic surveys
   - Establish and maintain a comprehensive and effective malaria knowledge management system to collate, interpret, disseminate, and promote the use of quality malaria data for evidence-based decision making at national and district level
   - Design and support the implementation of a comprehensive malaria surveillance and response system for epidemic-prone districts
5. Programme management, partnership development and resource mobilization
   - Improve the effectiveness and accountability of malaria control implementation by strengthening partnerships and cooperation with malaria control stakeholders at all levels

- Increase the level of resource mobilization to fund the strategic plan, according to the programmatic needs
- Promote a harmonized regional and inter-sectoral approach to malaria control

Stratification and Malaria Control Strategic Options

Three major stratification categories relevant to malaria and its control were identified: (1) malaria transmission ranging from malaria free to malaria high transmission (>50%); (2) malaria control operational strata related to human population, habitat, malaria control measures and vector biological determinants; and (3) malaria vulnerability of population strata, which includes groups within the community that are at greater risk of becoming infected or developing a severe form of the disease. The latter two categories are sub-sets of the first strata. Depending on the strata, different approaches for each of the core interventions are recommended.

Implementation Arrangements

The National Malaria Control Programme of the Ministry of Health and Social Welfare is responsible for designing strategies; developing guidelines; mobilizing resources; facilitating implementation and monitoring and evaluating progress on malaria control interventions. NMCP is led by a Programme Manager, reporting to the Director of Preventive Services, and is divided into a Technical Section and an Administration and Finance Section. The Technical Section is made up of four units: Integrated Malaria Vector Control (IMVC), Malaria Diagnosis, Treatment and Preventive Therapies, Behaviour Change Communication and Surveillance, and Monitoring and Evaluation. The Administration Section is divided into two units: Finance and Accounts and Programme Administration.

A National Malaria Steering Committee, with input from two technical sub-committees (vector control and case management) and several working groups, provides governance on all strategic decisions concerning malaria control in the country.

The implementation of the strategic plan is a joint effort of all partners and stakeholders at national, regional, district and community level.

CHAPTER 1: BACKGROUND

Country Profile

The total population of the United Republic of Tanzania, according to the 2012 census, is 44,929,002, compared to 34,443,603 in 2002. Tanzania's population grew by 10,485,399 persons or 30.4% since 2002, an equivalent to 1 million per year. In the inter-censal period of 2002–2012, the growth rate was 2.7%, compared to 2.9% per annum in the previous period (1988–2002). Tanzanian households consist of an average of 5.1 members. The rapid population growth has an impact on the available resources, especially on public expenditures on education, health and water and sanitation (especially in urban areas), as well as demand of other resources such as land (NBS, Census, 2012).

Tanzania lies mostly between latitudes 1° and 12°S and longitudes 30° and 40°E and has a tropical climate, with regional variations due to topography. The Coastal Lowlands extend from the seashore of the Indian Ocean for about 150kms inland to an altitude of about 300m. The Coastal Lowlands regions are warm and humid, with temperatures ranging from 17°C to 30°C through most of the year. The basins around Lakes Victoria, Tanganyika and Nyasa, have relatively high temperatures and humidity and heavier rainfall. The greater part of Tanzania consists of the Central Plateau, around 900–1,800m, which is punctuated with mountain ranges. The Central Plateau has more marked diurnal temperature variations, being warm to hot during the day and cool at night. The Highland regions, including Mount Kilimanjaro and the Southern Highlands, are more temperate, with temperatures around 20–23°C throughout the year, except during the cool season (June–September), where temperatures drop below 17°C.

Mainland Tanzania is divided into two main administrative levels: regions and councils. The councils are categorised according to population settings: district councils (mainly in rural settings), township, municipal and city (mainly urban settings). Councils are divided into four to five divisions, and each division has three to four wards. Five to seven villages form a ward. The council is the most important administrative and implementation authority for public services, including policies of the Ministry of Health and Social Welfare (MoHSW) and consequently those of the National Malaria Control Programme (NMCP). The administrative councils and regions have increased in number in recent years: the 2012 census includes 25 regions, 159 councils (see *Figure 1*) of which 125 are district councils, 12 towns, 29 municipal and 3 city councils.

Socioeconomic Situation

The gross domestic product (GDP) growth in Tanzania shows a rising trend, except for years when facing a food crisis, power crisis, and global economic and financial crisis. Since 2005, Tanzania's GDP annual growth rate averaged 7%, which was in line with poverty reduction strategy target of 6%–8% per annum. However, the incidence of income poverty (i.e., basic needs and food poverty) did not decline significantly. Out of every 100 Tanzanians, 36 were poor in 2000–2001 compared to 34 in 2007 and 22.8 in 2011-2012 (Household Budget Survey 2012). Income poverty varied across geographic areas, with rural areas worse off than urban. Rural growth, fuelled by growth of the agricultural sector between 2000 and 2007, was about 4.5% on average. When this growth is contrasted with the national population growth rate of 2.9%, the change in rural per capita income becomes small, thus perpetuating poverty in rural areas.

Figure 1: Tanzania: Administrative Setup

Source: NMCP 2014

Organisation of Health Services

The National Health System is based on a central-district government structure. The MoHSW and Prime Minister's Office Regional Administration and Local Government (PMORALG) are jointly responsible for the delivery of public health services. The central MoHSW is responsible for policy formulation and the development of guidelines to facilitate policy implementation. Regional Health Management Teams (RHMTs) interpret these policies and monitor their implementation in the districts they supervise. The Regional Medical Officer (RMO) heads the RHMT and reports directly to the MoHSW on issues related to medical management and to PMORALG, through the Regional Administration Secretary (RAS), on issues related to health administration and management. The Council Health Management Team (CHMT) is responsible for council health services, including dispensaries, health centres and hospitals. The CHMT follows guidelines for planning and management of district health, which are issued jointly by MOHSW and PMORALG. The District Medical Officer (DMO) heads the CHMT is in charge of all Council Health Services; is accountable to the Council Executive Director on administrative and managerial matters; and reports to the RMO on technical matters.

In Tanzania there are 6,525 registered healthcare facilities, including hospitals, health centres and dispensaries (see *Table 1*). Public health services are delivered through government, voluntary agencies non-profit and parastatal healthcare facilities. The healthcare system in Tanzania is based on a hierarchical system represented by administrative level, type and function of facility. The system includes a referral structure from primary healthcare to tertiary district, regional, consultant and specialized hospitals (*Table 1*). A dispensary serves a population of 6,000 to 10,000 people; a health centre serves 50,000–80,000; and a district hospital serves more than 250,000. A regional hospital serves as a referral centre to four to eight district hospitals, and the four consultant hospitals serve as referral centres for several regional hospitals.

Table 1: Health Facilities in Mainland Tanzania, According to Ownership

	Government	Faith-based organisation (FBO)/Voluntary	Total Public	Private	Grand Total
Hospital	113	88	201	15	216
Health Centre	448	105	553	37	590
Dispensary	4514	622	5136	506	5642
Other	51	3	54	23	77
Grand Total	**5,126**	**818**	**5,944**	**581**	**6,525**

Source: MOHSW website www.moh.go.tz.

Global Policy Documents and Initiatives

Millennium Development Goals

Malaria control interventions in Tanzania correspond with the MDGs that aim at reducing the child mortality rate by two-thirds, reducing the maternal mortality rate by three-quarters, and combating HIV/AIDS, malaria and other diseases by controlling them by 2015 and thereafter reversing their spread.

Post-MDG

Consultative meetings on the Post-MDG agenda have begun at the global level involving a series of consultative dialogue with States, non-governmental organizations (NGOs), private sector partners and academic and research institutions[1]. The United Republic of Tanzania has observed a steady decline in malaria prevalence in the last decade and a moderate decline in HIV/AIDS. However, it is well recognized that the present MDGs is an unfinished agenda. A lot needs to be done beyond 2015 to sustain the gains that have been made to date and to ensure more equitable levels of achievement across countries, populations and programmes.

The Roll Back Malaria Partnership

The RBM Partnership, launched in 1998 and redesigned and strengthened in 2006, is a global framework to implement coordinated action against malaria. It mobilizes for action and resources and forges consensus among partners. The Partnership is comprised of more than 500 partners, including malaria endemic countries, their bilateral and multilateral development partners, the private sector, nongovernmental and community-based

[1] UNAIDS, UNICEF, UNFPA, WHO. UM System task team on the post – 2015 UN development agenda: Health in the post – 2015 – UN development agenda, May 2012

organisations, foundations, and research and academic institutions. RBM's overall strategy aims to reduce malaria morbidity and mortality by reaching universal coverage of interventions, strengthening health systems, and sustaining control over time.

Abuja Declaration

In April 2001, African Union countries meeting in Abuja, Nigeria, pledged to increase government funding for health to at least 15% of the government budget and urged donor countries to scale up support. Tanzania played an active role in crafting the declaration on malaria and was instrumental in mobilising the malaria community around its goals. Even if donors funding for malaria control rose over the last decade, the government funding for health is still below the pledged figure.

The African Leaders Malaria Alliance

There has been a political momentum in the fight against malaria where African Heads of State launched 'the African Leaders Malaria Alliance (ALMA)'during the United Nations General Assembly in September 2009 to provide African leaders with a high-level forum to ensure efficient procurement, distribution, and utilization of malaria control interventions; facilitate the sharing of effective malaria control practices; and ensure that malaria remains high on the global policy agenda[2]. One of the major strategies of the forum is to furnish a platform for collective advocacy with multilateral organizations on such policy priorities as the timely release of donor funds and the efficient implementation of the global strategy essential for malaria awareness, acquisition and dispensing malaria control assets. The founding Chairperson of the alliance is honourable President of the URT – His Excellency, Jakaya Mrisho Kikwete.

Multisectoral Action Framework for Malaria

In Africa US$12 billion is incurred alone in lost productivity due to malaria. The scourge has a huge impact in poor socio-economic development, marginalization and exploitation. Furthermore, climate change affects the geographical distribution of the malaria parasite and population movement increases vulnerability. The *Multisectoral Action Framework for Malaria* launched alongside the 68th Session of the UN General Assembly in New York in September 2013[3]. The framework makes a clear case for re-structuring the way countries address malaria. It presents a menu of concrete, implementable processes and actions to transform malaria responses—from being a concern of the health sector only, towards a coordinated multi-pronged effort that harnesses expertise across a range of sectors and institutions.

National Policy Documents

Vision 2025

The Tanzania National Development Vision 2025 (Vision 2025) outlines broad national long-term goals, perspectives and aspirations. The core objective is to influence changes, coordinate and direct the people and the nation's strategic thinking and direct national resources towards those strategic interventions that will enable Tanzanians to attain their development goals and be able to compete in the growing and competitive world economy.

[2] The African Leaders Malaria Alliance. http://www.ALMA2015.org.

[3] RBM and UNDP. Multisectoral Action Framework for Malaria. RBM, Partnership, September 2013

The National Strategy for Growth and Reduction of Poverty (NSGRP II)

The aim of this strategy is to increase productivity by encouraging individual and income generation for community development. Given malaria's impact on poverty in the country, any intervention to reduce malaria will automatically increase productivity and economic growth of the country.

National Health Policy

The National Health Policy has been amended since its inception in 1990 to incorporate the ongoing health sector reform process in the country (MoHSW, 2007). It also takes into account emerging and re-emerging diseases and changing landscape in science and technology.

In line with Government Development Vision 2025 goals, the MoHSW will contribute towards the improvement of the health status and life expectancy of the people in Tanzania. This will entail ensuring the delivery of effective, efficient and high-quality curative and preventive health services for all citizens at every level. Success in achieving the objectives of the present health policy will require tangible solutions to the current systematic problems that affect the delivery of health services, notably human resources, which constitute the major problem impeding the implementation of most planned activities. The vision of the Government is to have a healthy society, with improved social wellbeing that will contribute effectively to personal and national development. The mission is to provide basic health services in accordance to geographical conditions, which are of acceptable standards, affordable and sustainable. The health services will focus on those most at risk and will satisfy the needs of the citizens in order to increase the lifespan of all Tanzanians. The policy has taken into cognizance the vulnerability of women and children to communicable diseases and accorded free health services in the public sector to these groups.

The Health Sector Strategic Plan III

The vision of the HSSP III is to provide health and social welfare services of high quality, effective, accessible and affordable, delivered by a well performing and sustainable national health and welfare system that encourages responsiveness to the needs of the people. The mission is to facilitate the provision of equitable and effective health and social welfare services by formulating policies and guidelines, delivered by an adequate, competent and well-motivated human resource to improve the health and wellbeing of the public with emphasis on those most at risk.

The focus of this strategic plan is on "Partnership for delivering the Millennium Development Goals". The crosscutting issues elaborate on the approach towards quality, equity, gender and governance. The document explains which types of services are provided in the health sector and also explains the roles and responsibilities of each level in the health system.

Local Government Reform Policy Paper

The Local Government Reform Policy emphasises devolution of power from the central government and the establishment of a holistic local government system, in order to achieve democratic and autonomous institutions. Within this context, primary health services are also managed and administered by local government authorities.

CHAPTER 2: *EPIDEMIOLOGICAL PROFILE OF MALARIA AND ITS CONTROL IN TANZANIA*

Malaria Epidemiology in Tanzania

Malaria Parasites and Vectors in Tanzania

Although *P. falciparum* is the main species in Tanzania, other non-*falciparum* species are commonly encountered with different distribution in the country. Despite a lack of detailed information, studies conducted in North-eastern Tanzania show that the prevalence of *P. malariae* ranged between 3.9% and 8.3%. *P. ovale* distribution in Tanzania is not clearly known. The dynamics of other parasites fluctuates over time, depending on the prevalence of the dominant *P. falciparum*. *P. vivax* is another malaria species which is an important public health concern globally. However, the parasite has never been reported in mainland Tanzania.

National therapeutic efficacy testing conducted in 2011–2012 show that malaria parasites are still sensitive to ACT and the efficacy of Artemether-lumefantine (ALu) and other ACTs is still very high. However, recent reports show that resistance against artemisinins has emerged in South East Asia, and this resistance can seriously threaten malaria control efforts if spread to African continent.

Main Malaria Vectors

The major vectors of malaria in most areas of Mainland Tanzania are members of the *An. gambiae* complex. Among them, *An. gambiae sensu stricto* prefers resting inside houses and feeding on human blood. Another member of the *An. gambiae* complex, *An. arabiensis,* exhibits a wide range of feeding and resting patterns, depending on geographical location and blood-host availability. The second largest malaria vector in Tanzania is *An. funestus that,* like *An. gambiae s.s*., is more anthropophilic and endophilic.

Recent Changes in Vector Dynamics in Tanzania

Until very recently, *An. gambiae s.s.* was considered the most important malaria vector in most parts of Tanzania, particularly because of its high vectorial capacity, near-exclusive dependence on human blood, and its tendency to preferentially bite sleeping humans indoors. However, recent evidence suggests that this vector's population densities (and therefore its contribution towards overall malaria transmission) has been dwindling, to the extent that in some parts of the country (Lower Moshi, Ulanga, and Kilombero), it is rarely detected. The dwindling in populations of *An. gambiae s.s.* is often associated with scale-up of indoor insecticidal interventions such as IRS and LLINs. However, in some places such as Muleba in the Lake Victoria region, insecticide-resistant populations of *An. gambiae s.s.* have persisted despite large-scale use of IRS, and in Dar es Salaam, the species is still regularly caught, despite having generally low densities. In the eastern regions of Tanga, Pwani, and Morogoro, the vector species has largely been overtaken by *An. arabiensis*, which is now the predominant vector. The increased dominance of *An. arabiensis*—a vector that tends to feed and rest outdoors and can feed on non-human blood sources—presents an important and widespread challenge to malaria control in Tanzania. *An. funestus* remains a dominant malaria vector in several parts of Tanzania. Due to its very high vectorial capacity, this vector is increasingly associated with the persistent residual malaria, particularly in south-eastern Tanzania, where its densities and sporozoite rates have risen steadily in recent years.

Insecticide Resistance in Mainland Tanzania

In 2011, high levels of insecticide resistance to pyrethroids were reported in *anopheline* mosquitoes in Muleba district. Pyrethroid resistance was reported in other districts of Mainland Tanzania, including Geita, Ngara, Tanga, Moshi, and Dar es Salaam. So far, causative factors for the emerging resistance have not been established. It is strongly suspected, however, that the use of agricultural pesticides, use of nets impregnated with pyrethroids (LLNs/ITNs), and spraying of indoor walls with pyrethroids for malaria vector control and the use of acaricides against pests of veterinary importance might be responsible for the emergence of resistance.

Malaria Epidemiological Transition 2000–2010

The Tanzania HIV/AIDS and Malaria Indicator Surveys (THMIS) carried out in 2008 and 2012 showed that malaria prevalence among children 6 months to 59 months of age has declined by 50%, from 18.1% to 9.5%. There is, however, considerable variation across regions, from less than 1% to greater than 33%. Overall, the prevalence decreased in all zones and in all age groups. In both surveys, malaria prevalence was 10-fold higher in children living in household within the lowest wealth quintile compared to the highest quintile and three times higher in children whose mothers never attended school compared with the ones with secondary education and above. However, malaria prevalence decreased across all wealth quintiles and all educational levels.

A temporal analysis of available malaria prevalence surveys between 1980 and 2012 show consistent signs of declining parasite prevalence since 2000 (NMCP 2013). Across Tanzania, between 2000 and 2010, there was a greater than 50% reduction in predicted mean population-adjusted parasite prevalence in children aged 2–10 years (PA*Pf*PR_{2-10}). Even taking due caution in interpreting the results—since the data are generated from different spatial locations and at different time—there is general consensus to affirm that Tanzania is currently under a malaria epidemiological transition.

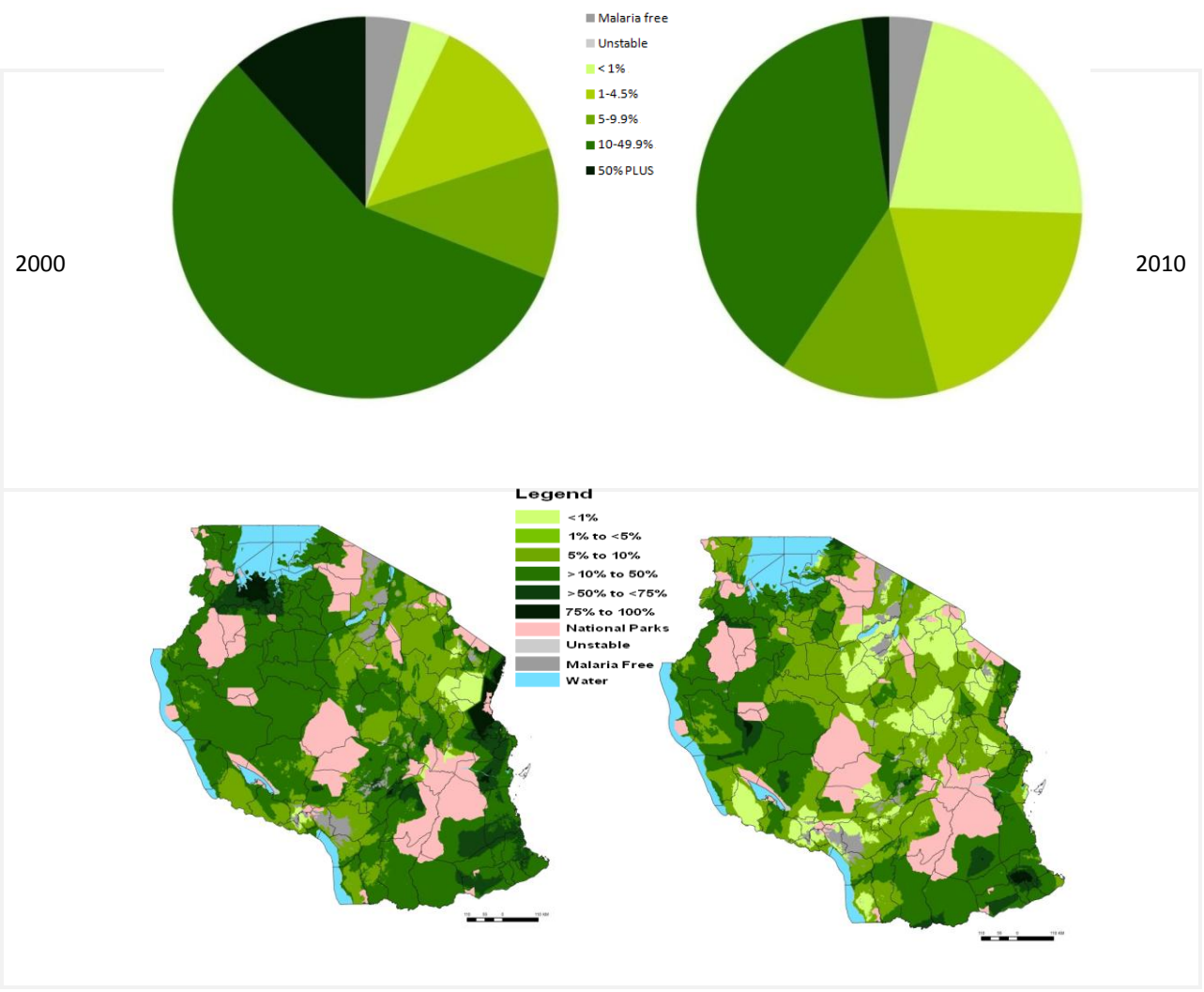
The proportion of Tanzania's population living in areas of intense transmission (PA*Pf*$PR_{2-10} \geq 50\%$) has declined from 11.6% in 2000 to only 2.3% by 2010. Although only 30% of Tanzania's population lived in areas where transmission would be regarded as hypo-endemic (parasitaemia 0% to <10%) in 2000, by 2010 almost 60% of Tanzanian's were living under these conditions (*figure 2*). Dramatic declines in malaria transmission intensity have not been witnessed everywhere; areas that have not been subject to the epidemiological transition are located in the Southern region and parts of the North Western regions of Tanzania.

Malaria Epidemiological Dynamics and Population at Risk

According to the most recent estimate, about one quarter of the Tanzanian population lives in areas with unstable malaria transmission, defined as less than 1% expected malaria prevalence. In addition, about 59% of the population lives in malaria hypo-endemic areas, and the remaining 41% lives in meso-, holo-, or hyper-endemic areas (*Figure 2*).

Seasonal malaria peaks occur at the end of the rainy season. The central and southern zones of the country have a single main rainy season (peak in March through April), with more than 60% of rainfall concentrated in less than three months, while Eastern, Northern and Western zones experiences bimodal rainfall (with peaks in November and April) and with rainfall spread over a longer period.

Figure 2: Percentage of Tanzania's Population at Various Classes of P. Falciparum Endemic Risk in 2000 and 2010



Source: Epidemiological profile of Malaria and its control, NMCP 2013

Malaria Control Achievements 2008–2013

Main Malaria Control Impact and Outcome Indicators, 2008 and 2012

Malaria Prevention

The 2008 and 2012 THMIS show a dramatic increase in ITNs/LLIN ownership (from 38.3% to 91.5%) and use (from 20% to 69%). The rural areas had a three-fold increase in ownership. Use amongst biologically vulnerable groups remains higher than amongst rest of the population. Populations living in households of the lowest wealth quintile had a four-fold increase in ownership of nets, from 22% to 90%. The net source pattern changed between 2008 and 2012 due to different distribution mechanisms, with 55% of nets in the households provided through free campaigns in 2012, while in 2008 the bulk of the nets (59%) came from a shop, mobile vendor, or market.

The overall proportion of households covered by IRS in the previous 12 months rose seven-fold between 2008 and 2012. IRS has been implemented in selected areas of the country and was scaled up in 18 out of 22 councils in three regions of the lake zone between 2008 and 2012.

The proportion of women with a history of pregnancy in the previous two years accessing two or more doses of SP for IPTp did not change over the two surveys—30% and 33%, respectively.

Management of Fever in Children

Despite the drop in malaria prevalence, the proportion of children with a history of recent febrile illness did not change—19% and 20.5% in 2008 and 2012, respectively. Urban settings have a relatively higher rate of febrile illness compared to rural areas—23% and 20%, respectively. The 2012 THMIS showed increased consumption of ACT (35%) compared to the 2008 survey (20%), especially in rural areas. ACT was the leading antimalarial taken during the illness in both surveys, but its share went up from 37% in 2008 to 61% in 2012. Two out of three children treated with antimalarials in rural areas were given an ACT.

Malaria Knowledge and Communication

In THMIS 2012, the media most commonly used by far to convey malaria messages to women ages 15–49 year was radio, with a share of 49%. A similar proportion of radio diffusion has been observed in rural and urban communities, while printed materials and television were used mostly the population living in urban areas. Women living in households in the lowest wealth quintile and with no education have significantly lower access to malaria messages compared to women who were in the highest wealth quintile and had had more education; specifically, 48% of women in the lowest wealth quintile accessed malaria messages compared to 82% of those in the highest quintile, and 37% of women with no education accessed malaria messages compared to 84% of the women with secondary education or above. Women living in households in the lowest wealth quintile and with no education were more likely to receive the messages from healthcare workers compared to women in the respective highest wealth quintile.

Main Malaria Control Outputs 2008–2013

During the implementation of the last National Malaria Strategic Plan for the years 2008–2013, four major initiatives were undertaken for **malaria prevention**: (1) continuation of the Tanzania National Voucher Scheme (TNVS) for infants and pregnant women, (2) campaigns for mass distribution of free LLINs for children under five (2009–2010) and for universal LLIN coverage (2010–2011), (3) IRS in three regions of Lake Zone, and (4) application of larvicide in Dar es Salaam city. Between 2008 and 2013, a total of 7.8 million ITNs and LLINs were sold through the TNVS and the two mass distribution campaigns (8.7 million nets and 17.6 million nets for the U5 children catch up campaign and universal coverage campaign, respectively). A total of 3,053,247 households were sprayed.

The four main initiatives regarding **malaria diagnosis, treatment, and preventive therapies** between 2008and 2012 were (1) treatment of uncomplicated malaria by consolidating the use of ACT (introduced in 2007), (2) establishment of a Quality Assured ACT (QAACT) co-payment scheme in the private sector through the Affordable Medicine Facility for Malaria (AMFm), (3) introduction and scale-up of RDT for malaria diagnosis, (4) treatment of severe malaria using injectable quinine, and (5) continuation of IPTp. Between 2008and 2012 a total of 93,858,422 AL treatments and 29,523,750 malaria rapid diagnostic tests (mRDTs) were procured and distributed in public health facilities; 25,672,590 QAACT were procured and distributed through private facilities.

The three major **SME** initiatives included in the plan were (1) the establishment in 2009 of weekly reporting for malaria commodities stock; (2) the establishment, in 2010, of national sentinel sites for insecticide resistance monitoring; and (3) the revitalization, from 2010, of national sentinel sites for monitoring efficacy of antimalarials.

Malaria Control strengths, weaknesses, opportunities and threats 2008 – 2013

During the malaria programme review and at the initial stage of the development of the current national strategic plan NMCP and partners identified strengths, weaknesses, opportunities and threats for malaria control.

The major ***Integrated Vector Control*** **strengths** were: strong national partnership and donor harmonization leading to a ITN coordinated strategy with successful resource mobilization; good linkages and collaboration with both local and international research institutions; and infrastructure for monitoring insecticides effectiveness and efficacy in place. The key **weaknesses** were: heavy reliance on pyrethroids and lack of sufficient cost-effective alternatives for vector control; activities of local stakeholders in malaria not clearly mapped or coordinated; and limited knowledge of CHMTs on mosquito dynamics and capacity to conduct simple entomological surveys. Although, a number of **opportunities** were available including the current funding gap for the LLIN keep-up strategy provides an opportunity to identify potential donors and partners; efficient infrastructure and capacity for implementation of IRS interventions in selected areas; the government willingness to support larviciding programme and related infrastructures and availability of insecticide resistance mitigation plan. The identified **threats** were: risk of insecticide resistance; delay in implementation of LLIN keep-up strategy and high cost related to IRS implementation.

The major ***Case Management*** **strengths** were: well established and strong national regulatory authorities; good storage and distribution facilities for malaria case management commodities; available regularly updated national national guidelines; functional and well engaged case management cell within the NMCP; available therapeutical efficacy framework. The most relevant **weaknesses** were: bottlenecks in the logistic management at different levels; persistence of presumptive treatment in drug outlets; consistent poor access to malaria diagnosis and treatment within 24 hours from onset of illness; and limited achievement for IPTp performance. The recognized **opportunities** were: established and functioning logistic management unit; available m-health platform for reporting stock status; feasibility of scaling up diagnostics in informal health sector to reach universal access; and available platform for procurement of affordable quality assured ACT for the private sector. The major **threat** was Risk of Artemisinin resistance.

The **strengths** *related to* ***Behaviour Change Communication*** were: high awareness on malaria interventions amongst the general population; increasing community acceptance and willingness to IRS and ITNs interventions; and strong collaboration between NMCP and implementing partners. The identified **weaknesses** were: low priority given in CCHP and budgets on to community interventions for malaria control; limited capacity building on BCC in regions and districts; and insufficient coordination on messaging with other health and thematic areas. BCC operational **opportunities** were: the presence of Tanzania Parliamentarians against Malaria Association (TAPAMA) and local media willingness to support of IEC/BCC initiatives. The major **threat** was the large majority of the funding for BCC activities is donor dependent making it less sustainable in the long run.

On the ***Monitoring and Evaluation*** side the identified **strengths** were: available DHIS2 platform with high reporting rates; regular implementation of national representative surveys; malaria risk map developed; innovative school parasitaemia studies providing district-based prevalence data; revised surveillance; and existing monitoring and evaluation plan. Insufficient human resources at NMCP to manage the many different data sources; fragmented malaria data bases; limited surveillance system to guide the vector control interventions were the notable **weaknesses**. The opportunities include: availability of committed and competent partnership for development of comprehensive and integrated malaria surveillance platform; establishment of composite national malaria database. The threats were identified as: questionable quality and consistency of health facility generated data and limited funding for implementation of malaria indicator surveys.

The two major identified ***programme management*** **strengths** were: availability of a strong global and national policy framework for malaria control and active programme with departments divided into thematic areas. The **weaknesses** were: progressive declining of resources for malaria vector control and long lead times for procurement and budget allocation. High political support for malaria control and availability of technical and funding partners were identified as **opportunities** while the high dependence on donor funding, lack of technical professionals in the programme and uncertainties of continued funding to sustain the gains achieved were mentioned as eventual ***threats***.

CHAPTER 3: NATIONAL MALARIA STRATEGIC PLAN 2014–2020

The process of developing the malaria strategic plan

The development of this strategic plan was through a consultative process under the leadership of the NMCP. The Malaria Programme Review which was conducted in 2012 in consultation with malaria key stakeholders laid down the foundation for the development of the NMSP 2014-2020. The processes involved the following steps:

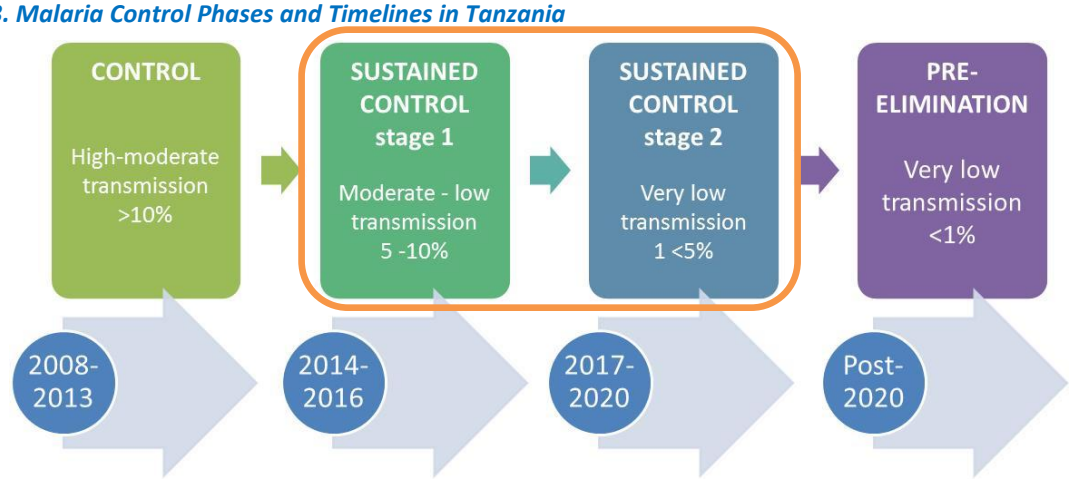
- NMCP performed a situation analysis of achievements and challenges of the current strategic plan through a SWOT using the Malaria Programme Performance Review (MPR) recommendations as a guide[4] (February 2013).
- A strategic plan outline was subsequently developed including vision, mission, objectives, targets, interventions and performance framework of the new NMSP (March 2013).
- A first stakeholders meeting was called upon to review and discuss the strategic plan outline (April 2013).
- The inputs from this meeting were used to develop the first draft NMSP 2014-2020 (May – July 2013).
- A second stakeholders meeting was held to review the first draft of the NMSP (October 2013). The NMCP received very useful and constructive comments which was used to develop the second draft of the strategy
- Development of a 3 years business plan (February – May 2014)
- The RBM Harmonization Working Group called upon countries which were preparing to submit 'Concept Notes' to the Global Fund to peer review their strategic plans. Tanzania received further comments on their draft and these were used to finalize the NMSP (March 2014)
- NMSP finalization (May 2014)

Malaria Control Phases

Malaria control can be represented as a continuum with different phases depending on transmission levels, as shown in *Figure 3.* Tanzania is currently in the control phase but is rapidly transitioning to a sustained control phase with moderate to low transmission, with some areas in a pre-elimination stage with transmission levels of less than 1%. The 2014-2020 National Malaria Strategic Plan intends primarily to sustain the achievements of the previous phase to further reduce malaria transmission, and to consolidate the malaria control level achieved, and to explore the possibilities to move further. The plan is divided in two strategic stages: the first period (2014-2016) will sustain the recent progress and achievements while the second period (2017-2020) will consolidate the achievements and will explore the feasibility to enter into a malaria pre-elimination phase in defined areas of the country.

[4] United Republic of Tanzania, Ministry of Health and Social Welfare. Malaria Programme Performance Review – Tanzania Mainland Report. April 2012. National Malaria Control Programme

Figure 3. Malaria Control Phases and Timelines in Tanzania



Each stage requires a set of different intervention packages across all strategic areas. As malaria cases decline, interventions must become more targeted and intensified. Building strong surveillance and health systems will become increasingly important. Accurate diagnostics and treatment of both clinical as well asymptomatic cases will be crucial to eliminate the malaria parasite in the human population. Vector control interventions will need to be intensified to reduce transmission to very low levels.

Vision

Tanzania becomes a society free from malaria.

Mission

Ensure all Tanzanians have access to quality, effective, safe, and affordable malaria preventive and curative interventions through timely and sustainable collaborative efforts with partners and stakeholders at all levels

Goal and Objectives

Goal

Tanzania seeks to substantially reduce the burden of malaria in the near- and medium-term by reducing malaria-attributable morbidity and mortality. The aim is to transition from the current areas of malaria meso-endemicity to hypo-endemicity and eventually elimination. The most appropriate way to record progress towards achieving this aim is to track the number of malaria cases and deaths nationally. At present, data on malaria cases and deaths are unreliable due to challenges related to the health system. Although measures of malaria prevalence do not indicate burden of disease, they reflect the intensity of malaria transmission and indirectly the burden of the disease in the population. In this context, it is deemed reasonable to assume that a reduction in transmission, measured through malaria parasite prevalence, will lead to reduction in the disease burden.

The goal is to reduce the average country malaria prevalence from 10% in 2012 to 5% in 2016 and further down to less than 1% in 2020

Strategy Components and Strategic Objectives

The 2014-2020 MTSP entails five components:

1. Integrated Malaria Vector Control
2. Malaria diagnosis, treatment, preventive therapies and vaccines
3. Promotion of malaria prevention and curative services through information, education and communication
4. Surveillance, monitoring and evaluation
5. Programme management, partnership development and resource mobilization

The 2014-2020 MMTSP has five strategic objectives, one for each component:

1. **Reduce transmission of malaria to less than 0.1 entomological inoculation rate by 2020, by scaling-up and maintaining effective and efficient vector control interventions**
2. **Prevent the occurrence of severe morbidity and mortality related to malaria infection through promotion of universal access to appropriate early diagnosis and prompt treatment and provision of preventive therapies and vaccines to vulnerable groups to reduce a case fatality rate of less than 1% by 2020**
3. **Create an enabling environment where individuals and household members are empowered to minimize their own malaria risk and seek proper and timely malaria-treatment if and when needed so that 90% of caretakers are able to take actions to protect their children from malaria**
4. **Provide timely and reliable information to assess progress towards the set global and national targets, to ensure resources are used in the most cost effective manner and to account for investments made in malaria control**
5. **Ensure effective programmatic and financial management of malaria control interventions at all levels, implemented through effective and accountable partnerships with adequate funding to reach an overall programme performance rate of A+**

Component 1: Integrated Malaria Vector Control

Strategic Objective

1. **Reduce transmission of malaria to less than 0.1 entomological inoculation rate by 2020, by scaling-up and maintaining effective and efficient vector control interventions**

Specific Objectives and interventions

2.1 Ensure that by 2020 at least 85% of the population of Tanzania, living in all transmission settings and control stages, have access to an LLIN within their household
2.2 Consolidate and expand IRS in epidemiologically and operationally suitable areas, covering at least 20% of house structures in Tanzania by 2020
2.3 Implement larviciding interventions in selected urban areas where breeding sites are few, fixed, and findable in order to reduce the larval density in the selected sites by 75% by 2020
2.4 Promote effective environmental management for malaria control to 50% of all urban wards in Tanzania by 2020
2.5 Provide a strategic framework for coordination and continuous assessment for the implementation of evidence-based IMVC interventions, so that at least two new innovations for malaria control are adopted in Tanzania by 2020

Specific Objective 1.1: Ensure that by 2020 at least 85% of the population of Tanzania, living in all transmission settings and control stages, have access to an LLIN within their household

Through the NATNETS Programme, Tanzania has been able to significantly scale-up the use of ITNs and LLINs and achieve universal coverage on Mainland Tanzania**.** From 2009 onwards, the programme has been promoting the distribution and use of LLINs, which are factory-treated with pyrethroids and do not need retreatment such as conventional ITNs.

The current LLIN strategy will build on the successes of previous years and the strong net use culture in the population. Stratification in terms of LLIN delivery mechanisms will continue to be developed in line with WHO/GMP and RBM recommendations[5] (i.e., a combination of campaign [catch-up] and continuous distribution [keep-up] systems of distribution). A key priority for maintaining universal coverage will be to establish systems to monitor coverage and variations in the rate of loss, so that the rate of the expected LLIN input can be adjusted to balance this loss. When resources are constrained, LLINs will be targeted to risk groups, especially young children and pregnant women in high transmission areas.

Interventions for the Specific Objective 1.1

1.1.1 Implement a mass replacement campaign to bring LLIN coverage[6] up to 80%

According to field studies, the median lifetime of a net is approximately three years. Most of the LLINs distributed during the two past mass campaigns (in 2009-2010 and 2010-2011) will be over three years old by 2014, and many of these nets will have passed their effective lifetime. Population access to an LLIN throughout the country will likely have dropped below a threshold of 60% as ownership decreases due to the decay of nets. Mathematical modelling[7] has shown that if access to LLINs drops below this threshold, it is not possible to bring coverage back up to 80% through a Continuous Distribution/ Keep-Up Strategy. Therefore, as an interim measure prior to rolling out a national Continuous Distribution Mechanism (see below), the MoHSW, with GFATM funding, will implement a LLIN replacement campaign which will provide one LLIN for every two people living in a household. The campaign will be implemented in 22 of the 25 regions in Tanzania (not including the three regions in the Southern Zone where the School Net Programme is implemented, see below). It is expected that the campaign will be rolled out from 2015 to 2016.

1.1.2 Implement continuous distribution mechanisms to keep up coverage

Approximately 7 million new nets are needed annually in Tanzania, increasing to 8 million by 2020, to maintain LLIN coverage at 80% or above. Therefore continuous distribution mechanisms will be implemented nationally, starting one year after the mass replacement campaign. A detailed study was conducted in 2011[8] to assess which continuous distribution mechanism(s) would be most feasible and cost-effective. This review showed that a combination of school-based distribution together with targeted distribution to pregnant women and infants will provide enough nets annually to sustain universal coverage. This combination model has the lowest estimated cost per net delivered and the least number of excess nets. It also ensures continuity across geographical areas and over time. According to mathematical modelling, the combined approach has the potential to reach 85% of the Tanzanian population, living in 73% of Tanzanian households. The model can be expanded to reach the remaining households without pregnant women or school children (e.g., by enabling these individuals to register with the schools for a free net). The mechanisms will be regularly monitored and evaluated. When and if necessary, the model will be adapted and revised.

[5] From the RBM Consensus Statement on Continuous Distribution Systems for Insecticide Treated Nets.

[6] Measured as one net for every two people.

[7] NetCalc, http://www.networksmalaria.org/networks/netcalc.

[8] Tanzania Keep-Up Strategy Options: Options and recommendations for maintaining universal coverage with LLINs in Tanzania: 2012 – 2021. Final Report July 31, 2011; Hannah Koenker, Yosh Yukich, Alex Mkindi.

The bulk of the LLINs required annually will be distributed to households through an annual School Net Programme (SNP). This mechanism was piloted in the Southern Zone in 2013 and will continue to be implemented there prior to national roll out (pending positive evaluation of the SNP). As distributing an LLIN to each student would provide more nets than needed to maintain universal coverage, a staggered approach is taken whereby students in alternate classes (standards 1, 3, 5, and 7 and Form 2 and 4) receive a net annually. As the child moves through the school system, he or she will bring home a new net every other year for redistribution within the household.

While the SNP targets all community members, it does not specifically target the groups most biologically vulnerable to malaria—pregnant women, infants, and young children. Therefore a health facility-based distribution mechanism needs to be implemented in conjunction with the SNP to ensure that those most at risk from (severe) malaria are continuously protected and have access to an LLIN when they need it.

From 2004 until 2014, these vulnerable populations obtained nets through the Tanzania National Voucher Scheme, a public private partnership (PPP) between the Ministry of Health, LLIN suppliers and retail network, donors and implementing partners. Donor funding for the TNVS was discontinued in 2014. A new strategy to reach vulnerable populations will be reviewed and adapted in the upcoming strategic planning period to ensure that pregnant women and their infants continue to have access to an LLIN through the antenatal and EPI health facilities.

1.1.3 Create an enabling environment to revive the commercial market for ITNs and LLINs

In the long term, the only economically sustainable approach to continuous LLIN distribution is the re-establishment of a viable commercial market for LLINs, at least in urban and peri-urban areas.A new LLIN strategy will be developed based on evidence from recent studies to strengthen and stimulate the role of the private sector in continuous distribution of LLINs. The analysis will also include consumer behaviour in terms of ability and willingness to pay (specifically in light of the availability of free or highly subsidized LLINs) as well as access of hard-to-reach and vulnerable populations to LLINs and recommendations at to most effective methods to reaching the poor. Interventions will focus on addressing barriers on both the supply and demand side.

Specific Objective 1.2: Consolidate and expand IRS in epidemiologically and operationally suitable areas, covering at least 20% of house structures in Tanzania by 2020

The prerequisite of the current strategy will be to develop criteria for identifying areas that are epidemiologically and operationally suitable for IRS. Currently the evidence regarding the added value of combining the use of LLINs and IRS is inconclusive, particularly when coverage of either strategy is high. However, there are conditions under which a combined approach of LLINs and IRS is deemed beneficial particularly in focal areas with seasonal malaria transmission; in epidemic prone areas to pre-empt malaria outbreaks; and areas with high levels of insecticide resistance. Mapping of local transmission patterns and potential will allow more targeted and focal spraying in these areas. Since pyrethroids are currently the only option for LLIN, other classes of insecticides are recommended for IRS.

Interventions for the Specific Objective 1.2

1.2.1 Build capacity of local government authority and private sector to plan, manage, implement, and evaluate IRS

The major focus of IRS will be to build implementation capacity at the council level. The capacity building plan will target council staff to enable them to plan, manage, implement, monitor, and evaluate IRS interventions in the respective councils. This process will involve a broad partnership of players from local governments, civil society, and the private sector. Standard operating procedures will be developed for the IRS implementing councils to provide quality IRS application. The selection of the councils to be targeted will be based on the recent updated epidemiological profile of malaria in the country.

1.2.2 Application of quality IRS in selected areas

Currently IRS is implemented in selected areas in 18 districts of the three regions of Lake Zone (Kagera, Mara, and Mwanza). IRS operations will be scaled up in selected focal areas in 43 districts, based on the following criteria: (1) identified holo- and hyper-endemicity areas with perennial transmission and resilient to changes; (2) moderate and high prevalence areas with seasonal transmission; (3) areas with high levels of insecticide resistance (especially pyrethroids); (4) areas with increased risk of epidemics; and (5) focal areas in the Lake Zone where IRS has historically been implemented. Using the malaria risk map it has become possible to locate the target areas more accurately so that IRS operations can be more focused and precise. The proposed IRS scale up entails a geographical expansion, with an increase in target areas. However, the total number of households sprayed will remain similar to the current levels (i.e., approximately 14% of households in mainland Tanzania).

The focus of implementation will be on ensuring optimum coverage, in space (houses sprayed) and frequency of spray rounds (in accordance with the residual effect of the insecticide used). To preserve optimal protection with LLIN which are currently treated with pyrethroids, NMCP recommends the exclusive use of insecticides with different mode of action to that of pyrethroids for IRS, such as organophosphate and carbamates.

Standard Operating Procedures will be developed for the IRS implementing councils to provide quality IRS The Standard Operation Procedures (SoPs) will outline the procedures to be followed for quality IRS including; monitoring of spray procedures in the field; monitoring of effectiveness of spray by conducting cone bioassay and apply insecticides quantification kits.; human safety and environmental compliance. Exit strategies will be planned well in advance, even at the start of the implementation in selected areas.

Specific Objective 1.3: Implement larviciding interventions in selected urban areas where breeding sites are few, fixed, and findable in order to reduce the larval density in the selected sites by 75% by 2020

Larviciding is an appropriate method to control mosquitoes in their larval stage by applying larvicides or biological products in breeding sites with first to third larval instars of *Anopheline* mosquito. Larviciding offers the additional advantage of targeting other vectors and contribute to control of other vector-borne diseases transmitted by mosquitoes (viruses and lymphatic filariasis). Evidence[9] suggests that larviciding, particularly in combination with environmental modification, could also potentially help reduce selection pressure in areas where it is applied on a large scale and contribute to the management of insecticide resistance. Larviciding is potentially an effective tool in addition to LLINs and IRS since it will attack both indoor and outdoor biting *An. arabiensis* or secondary malaria vectors, which are less anthropophilic and sustain low malaria transmission after high LLIN/IRS coverage.

As per WHO guidelines, larviciding is only recommended in areas where mosquito breeding sites are few, fixed, and findable, as a supplement to the core vector control interventions of LLINs and IRS. The ideal situation for larviciding application is in high-population density areas, where breeding sites are easily recognized and mapped.

The country is expected to benefit from a decade of experience in using bio-larviciding in Dar es Salaam City and from the potential of local production of bio-larvicides.

Interventions for the Specific Objective 1.3

1.3.1 Application of larvicides where mosquitoes breeding sites are few, fixed, and findable

The GoT is constructing a bio-larviciding production plant, which is expected to be operational by 2014. The plant is capable of producing 6 million litres per annum and will be the main source of the biolarvicides in the country.

[9] Large-scale use of mosquito larval source management for malaria control in Africa: a cost analysis; Worrall E, and Fillinger U; Malaria Journal 2011 10: 338.

Currently the MoHSW is implementing larviciding activities in three municipalities out of 23 municipal councils in Tanzania. The intention is to gradually scale up larviciding to 11 municipal councils in 2016 to all 23 in 2020, using biolarvicides produced in Tanzania. NMCP will provide training and oversight to the LGAs to plan, manage, and monitor larviciding activities in the selected areas, with participation from the communities. Councils will be encouraged to include the operational costs in their Comprehensive Council Health Plans.

1.3.2 Promote larviciding application by the private sector in suitable environment and civil works sites

NMCP will work with the private sector (including large-scale mining and industrial companies, hotels, and construction companies) to encourage the implementation of larviciding operations in their respective premises/compounds.

1.3.3 Establish a system for monitoring larva density in areas where larviciding is applied

In all operation areas where larviciding is introduced, a continuous system for monitoring larva density will be established in collaboration with the respective councils. All the process of monitoring and evaluation of any larviciding operation will be coordinated by the National Malaria Control Programme.

Specific Objective 1.4: Promote effective environmental management for malaria control to 50% of all urban wards in Tanzania by 2020

Environmental management is one of the sustainable methods for malaria vector control, and it embraces environment modification, environmental manipulation, and manipulation of human habitation. The principal role of environmental management is to reduce malaria transmission by attacking local vector mosquitoes and will require an understanding of the ecology of the species. The legislative framework to promote and enforce environmental management by both public and private sector entities are the Public Health Act (2009) and Environmental Management Act (2004). The Public Health Act requires the owner of the premises to take a leading role in making sure that the respective surrounding is free from breeding of mosquitoes and other disease vectors. The Environmental Management Act requires any development project to conduct an Environmental Impact Assessment (EIA) for the purpose of safeguarding human health and the environment.

Interventions for the Specific Objective 1.4

1.4.1 Promote community-led environmental initiatives in selected urban wards

Reduction of vector breeding sites will be carried out either through physical reduction or alteration of mosquitoes breeding sites (e.g. marsh alteration, ditching, impoundment, basic sanitary measures, filling ground and drainage, house screening and brick pits, and barrier planting). The implementation of environment management measures will depend on the fullest understandings of the mosquito ecology and population dynamic as well as the malaria epidemiology. Identification of vectors habitats and mapping must therefore be intensified in order that the attack may be made on a sound basis. In urban and peri-urban areas, NCMP will encourage local authorities to take a leading role in the implementation of environmental measures through planning, regulation and engaging community and other stakeholders. When and if required the local government authorities will enforce the existing legislative framework[10] to control sites conducive to malaria vectors proliferation.

1.4.2 Promote environmental measures in all infrastructure development projects

The National Malaria Control Programme (NMCP) shall also coordinate and collaborate with the Environmental health section of the MOHSW, different stakeholders (public and private) as well as regulatory agencies such as the

[10] *Public Health Act (2009): Section 29(e) Part 30- 33*

National Environmental Management Council (NEMC) and develop guidelines on the implementation of environmental management measures. NMCP will liaise with relevant stakeholders to make sure that environmental management will be an integral part of future developmental project such as road construction, irrigation scheme development, and even hydroelectric power stations; when poorly planned or designed, such projects can potentially exacerbate the proliferation of mosquito vectors. NMCP will encourage the NEMC to make sure that the mandatory EIA, as specified by the law[11], is including a section on malaria control. The NMCP will advocate that major infrastructure project will include appropriate mitigation measures to avoid the occurrence of mosquito breeding sites.

Specific Objective 1.5: Provide a strategic framework for coordination and continuous assessment for the implementation of evidence-based IMVC interventions, so that at least two new innovations for malaria control are adopted in Tanzania by 2020

Integrated Malaria Vector Control (IMVC) is a rational decision-making process for the optimal use of resources for malaria vector control interventions. The approach seeks to improve the efficacy, cost-effectiveness, ecological soundness and sustainability of malaria-vector control initiatives. The four methods included in this Strategic Plan - LLIN, IRS, LSM and EM –are not separate implementation entities but a continuum of interventions with peculiar operational and epidemiological targets. In order to avoid unnecessary duplication of interventions, a strategic framework will be developed together with a forum for coordinating the initiatives.

It is unlikely that current vector control methods alone can eliminate malaria because none of the existing tools have proven to sustain an annual EIR less than one[12], especially in endemic countries such as Tanzania where transmission rates are very high. As a result of the scaling up of LLINs and IRS, there has been a shift in malaria vector species composition, resulting in a proportional increase of outdoor and early biting vectors. Addressing the residual transmission by these vectors requires different control strategies, which might also be based on reducing host-vector contact or targeting other key environmental resources. In addition, the threat of insecticide resistance could reverse the gains made in malaria vector control so far in Tanzania, and management of emerging resistance is critical. A range of new tools is being developed and tested, and these need to be continuously assessed for potential use in Tanzania.

Two major challenges in IMVC interventions are the insurgence of insecticides (and larvicides) resistance and the sub-optimal quality of pesticides and treated materials. The possible answers to the above challenges are the implementation of insecticide resistance management and strengthening quality assurance schemes respectively.

Interventions for the Specific Objective 1.5

1.5.1 Provide a forum and strategic framework for IMVC among partners to ensure coordinated and harmonized implementation of the interventions

The IMVC technical working groups will provide:1) Strategic directions for evidence based IMVC interventions, 2) Coordination of initiatives; 3) Assessment of partners capacity to implement IMVC initiatives; 4) Implementing partners verification on quality and coverage of interventions; and 5) Continuous assessment of the effectiveness of the intervention in the field. The NMCP, in collaboration with partners, will spearhead the development of IMVC guidelines and implementation packages to build capacity among partners.

[11] *Environmental Management Act (2004:) Part (VI) Section 82*

[12] 'Using the entomological inoculation rate to assess the impact of vector control on malaria parasite transmission and elimination'; Ayesha M Shaukat, Joel G Breman and F Ellis McKenzie; Malaria Journal 2010, 9:122

1.5.2 Encourage partners to research and develop new and appropriate vector control tools to create an evidence-base for scale up

NMCP will partner with research institutions to research the efficacy on new vector control tools and share evidence at relevant fora, including the Roll Back Malaria Vector Control Working Group (RBM-VCG) [13] and the Pan African Mosquito Control Association (PAMCA). Current ongoing researches include field trials of durable wall linings and LLINs with synergists. NMCP will actively engage with and participate in meetings with these and other relevant organisations to collect and share evidence on potential new tools.

When and if applicable, new vector control tools will be piloted and assessed for scale-up.

1.5.3 Implementation of insecticide resistance management plan

NMCP has developed an Insecticide Resistance Management Plan (IRMP) based on the WHO Global Plan for Insecticide Resistance Management (GPIRM). The key objective of the IRMP is to preserve insecticides susceptibility, slow down the evolution of resistance, and prolong the effectiveness of current vector control interventions. Regular insecticide resistance monitoring is a key element of the IRMP. The key strategies in the IRMP are judicious use and operational quality rotations, mosaics, combinations, and mixtures of insecticides for IRS, as well as promotion of new tools such as combination LLINs (using a mixture of pyrethroid insecticide and synergist) which have an increased efficacy against the pyrethroid-resistant malaria vectors, and also durable wall lining which with mixtures of different classes of insecticides. As these and other innovations become available, NMCP will continue to review and assess these tools for suitability for IVC in Tanzania.

1.5.4 Work with national regulatory authorities to improve the monitoring and quality assurance of IMVC equipment and commodities

NMCP, through the national regulatory authority (Tropical Pesticide Research Institute [TPRI], will ensure that all pesticides, larvicides, vector control equipment and treated materials are registered in Tanzania.

NMCP will also liaise with the IMVC partners to make sure vector control materials are continuously tested to assess their quality. Dissemination of the information will be assured through the existing governance arrangements.

1.5.5 Work with national regulatory authorities to dispose properly insecticide contaminated waste

Given the well-known and widespread concern about accumulating insecticides contaminated waste in the environment, NMCP, in collaboration with the national regulatory authorities, will develop guidelines for the disposal of obsolete LLINs and contaminated solid waste used for IRS and larvidicing.

Research institutions will be encouraged to design and operationalize an appropriate system for LLIN disposal through operational research interventions.

Component 2: Malaria Diagnosis, Treatment, Preventive Therapies, and Vaccine

Tanzania is transitioning from malaria meso-endemicity to hypo-endemicity. The current malaria epidemiological pattern has several implications on management of suspected malaria cases and on preventing severe morbidity in specific vulnerable population groups. This component of the strategic plan aims to ensure that symptoms and signs of malaria in the general population are recognized early and that appropriate management is provided

[13] www.rbm.who.int/mechanisms/vcwg.html

promptly at the individual, family, community, and facility levels. Appropriate management of suspected malaria cases is based on provision of quality diagnostic and therapeutic services. Additionally, the component comprises the provision of preventive therapies services for populations at risk of malaria, such as infants and children, pregnant women, people living with HIV/AIDS, and non-immune travellers. Emphasis on appropriate malaria case management services is also advocated for special population groups (e.g., refugees, migrants, the poor) and for specific operational, epidemiological, and emergency situations (e.g., urban areas, areas underserved by health services, malaria seasonal transmission, and malaria outbreaks).

Strategic Objective

2. To prevent the occurrence of severe morbidity and mortality related to malaria infection through promotion of universal access to appropriate early diagnosis and prompt treatment and provision of preventive therapies in vulnerable groups so that case fatality rate will be reduced to less than 1% by 2020

Specific Objectives and interventions

2.1 Provide universal access to appropriate, quality and timely malaria diagnosis to at least 80% of people with signs and symptoms of malaria by 2020
2.2 Provide universal access to appropriate, quality and timely treatment to at least 80% of people who have malaria by 2020
2.3 Provide appropriate and effective services to reduce the risk of malaria infection and its complications among 80% of populations biologically and socioeconomically vulnerable to malaria by 2020
2.4 Ensure that commodities used in malaria patient care and prevention are consistently safe, quality assured and available in at least 90% of the points of care by 2020
2.5 Deploy appropriate malaria case management interventions in at least 90% of outbreaks and resurgence situations by 2020 to reduce the risk of severe morbidity and mortality

Specific Objective 2.1: Provide universal access to appropriate, quality and timely malaria diagnosis to at least 80% of people with signs and symptoms of malaria by 2020

Prompt, accurate diagnosis of malaria is part of an effective disease management strategy. In light of decreasing malaria prevalence, there is even greater need to increase access to high-standard, affordable, and-quality diagnosis for malaria at all healthcare levels in both the private and public sectors to combat overtreatment of suspected malaria and target ACTs to true malaria cases. Therefore, all suspected malaria cases in all epidemiological, operational and population-based malaria control strata must be confirmed by a diagnostic test as recommended by national diagnosis and treatment guidelines. In particular, mRDTs are used to increase access and coverage of malaria diagnostics at all levels of the healthcare delivery system.

The focus of the current strategy will be to achieve and maintain high coverage of parasitological diagnosis of malaria by ensuring that in both public and private facilities that: (1) highly sensitive and specific malaria test methods are available; (2) providers skilled in malaria testing are available; and (3) that the malaria testing services are of a high quality. Behaviour change communication (BCC) will play an important role in encouraging patients to seek a confirmatory diagnostic test before treatment, and healthcare providers to adhere to the test results (these activities are covered in component 3 below).

Interventions for the Specific Objective 2.1

2.1.1 Provide high-standard, accessible, affordable, equitable, and quality-assured testing for patients seeking treatment in the public sector

NMCP and its partners will make sure that only high-standard, highly sensitive, and specific diagnostics will be selected for use in public health facilities. To improve continuous accessibility to diagnostics, the supply chain and logistics system will be strengthened, from quantification and procurement process up to delivery and to service points. Through global partnership mechanisms, NMCP will ensure that malaria diagnostics are affordable for patients attending public healthcare facilities.

2.1.2 Facilitate the provision of high-standard, accessible, affordable, and quality-assured testing to patients seeking treatment in the private sector

NMCP and its partners will aim to broaden access to diagnostic by establishing alternative malaria testing points outside of formal healthcare facilities. Accredited Dispensing Drug Outlets (ADDOs) and community-based services, within the MOHSW's new strategic direction in community–based interventions, will be empowered to test suspected malaria patients, if required. A regulatory framework will be set up to allow malaria testing in non-conventional diagnostic outlets. An appropriate M&E system will be introduced to verify adherence to SOPs. Accessibility and affordability of quality diagnostics will be promoted in the private sector by facilitating the procurement of quality diagnostic devices at subsidized/low costs through the global partnership.

2.1.3 Provide quality-assured testing services from skilled providers

Throughout the strategic period, NMCP and its partners will develop and implement a continuous training, supervision, mentoring and quality assurance plan to improve the adherence of healthcare providers to the SOPs.

2.1.4 Ensure quality testing services through quality assurance of the diagnostic sites and tests used

An accreditation and certification scheme to all laboratory services and laboratory staff will be strengthened in collaboration with the MoHSW diagnostic services section. Quality assurance of diagnostics equipment, reagents, and devices will be carried out in collaboration with global and national institutions. An innovative, district-based malaria test quality assurance scheme to monitor quality mRDT performances will be developed and scaled up during the first three years of the implementation of this strategic plan. Lastly, the national malaria reference laboratory, established within the National Health Laboratory and Quality Assurance Training Centre (NHLQATC) will be strengthened to consistently assist the NMCP in quality improvement of malaria microscopy.

2.1.5 Introduce evidence-based, innovative diagnostic tools for malaria detection and differential diagnosis of other pathogens causing febrile illnesses

Improved access to quality malaria diagnostics will be associated with introduction of fever management schemes and, eventually, innovative diagnostic tools to detect other pathogens and to facilitate differential diagnosis at all levels. Innovative malaria diagnostic technique will be explored, assessed in collaboration with research institutions, and eventually promoted if adequate and affordable.

Specific Objective 2.2: Provide universal access to appropriate, quality and timely treatment to at least 80% of people who have malaria by 2020

Early effective treatment of malaria patients remains the most important intervention in terms of its contribution in preventing mortality and reducing the incidence of severe illness. It is known that the majority of children who die from malaria do so within 48 hours of onset of illness, and referral to a healthcare facility can take several days. Studies have also shown that treatment of more than 70% of febrile illnesses is managed at home. Nationally representative surveys (TDHS & THMIS) indicate that access and utilisation of treatment with the recommended antimalarials within 24 hours after the onset of fever by children less than 5, has not improved for the last 10 years and is currently around 21% (THMIS 2011-2012). Countrywide, ACTs have been used by two-third of the patients treated with antimalarials.

The national guidelines for malaria diagnosis and treatment define the diagnostics and therapeutics of choice, the recommended clinical procedures, and their application at various levels of the healthcare delivery system in public, private, and community-based sectors. The guidelines are updated according to the status of therapeutic efficacy of antimalarials and evidence-based development of innovative diagnostics. The periodic revision of the guidelines is coordinated by NMCP and is carried out by an *ad hoc* task force. The National Therapeutic Committee is the MoHSW body responsible for approval of the proposed therapeutic options. The current strategy aims to increase the access to quality treatment by making ACTs more readily available in private sector facilities and communities, in addition to public facilities. BCC will be used to encourage patients to use recommended antimalarials and complete the dose.

The following strategic interventions are proposed to achieve this.

Interventions for the Specific Objective 2.2

2.2.1 Provide highly efficacious, accessible, affordable, equitable, and quality-assured antimalarials to patients seeking treatment in the public sector

The strategic direction for malaria treatment is to continue to ensure that the recommended antimalarials, with high efficacy profile, are available to patients seeking treatment in the public healthcare facilities. The supply chain and logistic system will be improved from quantification and procurement process up to delivery to service points. To increase equitable access to health services, the Government of Tanzania's is implementing the Primary Health Services Development Programme (*Mpango wa Maendeleo Afya ya Msingi* - MMAM) The MMAM is planning to establish first level health care facilities in all villages of the country.

To improve affordability, treatment with ACTs will continue to be free in the public facilities for vulnerable groups, while efforts will be made to encourage the private for-profit sector to provide ACTs at the lowest possible price, as well as ensuring the quality of commodities.

2.2.2 Facilitate the provision of accessible, affordable, and quality-assured antimalarials to patients seeking treatment in the private sector

The Affordable Medicine Facility for malaria (AMFm) experiences (2010–2013) showed that the market for quality assured ACTs in the private sector is significantly larger than was expected. With a high level of presumptive treatment of suspected malaria it will be challenging to saturate the market with affordable ACTs. Furthermore, the gap is filled by continued sale of ineffective antimalarial medicines. In the course of implementation of this strategic plan, subsidized ACTs must be better targeted to those with malaria, and work is still needed to remove less effective treatments from the marketplace. To improve affordability, NMCP will encourage the private for-profit sector to provide ACTs at the lowest possible price as well as ensure the quality of commodities. To increase accessibility to quality ACTs, the expansion of Accredited Drug Dispensing Organisations (ADDOs) coverage will be encouraged.

2.2.3 Provide high-quality case management of fever services from skilled providers

Health care service providers' capacity for differential diagnosis and management of fever cases will be strengthened at all level of health care delivery system. A key element in this approach is that health care workers provide or prescribe ACTs for malaria treatment only for those cases with a positive malaria diagnostic test. Health workers should use other diagnostic tests and clinical signs and symptoms to determine other causes of illness in those fever cases that test negative for malaria and manage them properly. Health worker competencies will be enhanced in this area through several initiatives including: (1) promotion of correct management of uncomplicated and severe malaria; (2) guidance on appropriate diagnosis and management of febrile conditions; (3) support IMCI implementation; and (4) provide supportive supervision and specific training for in service and pre service staff.

2.2.4 Provide equitable access to malaria diagnosis and treatment by creating an integrated community case management system for communities that are underserved by other health outlets

To address the problem of physical and financial access, and to ensure prompt and effective treatment, this strategy incorporates home-based management of malaria. Home malaria management is one of the recommended strategies for improving access to prompt and effective treatment of malaria episodes, which makes use of trained community members living as close as possible to where the patients live. The focus of this effort will cover the community services gap in underserved communities, especially in rural areas by introducing an integrated community case management (iCCM) package that will include health education, testing (mRDT), medicines for treatment of uncomplicated malaria (ACT), treatment support, and, eventually, pre-referral care of patients. This intervention will be implemented in line with the on-going government initiatives to strengthen Community Based Health Programmes. Tanzania has promoted Community Based Health Care (CBHC) using Village/Community Health Workers in tandem with expanding health services through front line health facilities. Various organizations and agencies engaged in CBHC and work force training and deployment have supported Government efforts, albeit with insufficient coordination. The Ministry of Health and Social Welfare has developed CBHC guidelines to assist and provide to stakeholders supporting community based health care, which is the basis for greater harmony and cohesion through integrating current Community Health Workers programs and initiatives at the community level with government standards.[14]

Specific Objective 2.3: Provide appropriate and effective services to reduce the risk of malaria infection and its complications among 80% of populations biologically and socioeconomically vulnerable to malaria by 2020

The population groups most vulnerable to malaria infection and its complication are (1) infants and children who have not yet developed partial immunity to malaria; (2) school-age children, who are becoming more susceptible to malaria infection due to the changing malaria epidemiology, especially in low transmission areas; (3) pregnant women whose immunity is decreased by pregnancy, especially during the first and second pregnancies; (4) sickle cell anaemia patients, due to the risk of a severe form of malaria and associated deaths; (5) people living with HIV/AIDS due to the acquired immunodeficiency and higher risk of infection; and (6) travellers or migrants who come from areas with little or no malaria transmission and therefore have very low or no immunity.

All of these groups need to have their vulnerability to malaria infection reduced. Chemoprevention and prophylaxis are currently viable options for some of them, and vaccines are still under development and may become an option in a later stage of the strategic plan implementation. Other malaria prevention measures, especially the use of LLINs, should be advised to all vulnerable groups.

The impact of malaria on a pregnant woman and her foetus differs with the intensity of malaria transmission but in all cases represents a significant burden on the health of mother and child. To reduce maternal morbidity and mortality and improve the new-born's chances of survival, malaria in pregnancy will remain an essential part of the malaria control strategy. The 2010 TDHS showed that although approximately 70% of women come early enough and frequently enough to receive two doses of SP, IPTp2 coverage has essentially remained constant at about 27% (30% in the THMIS 2007, 22% in the TDHS 2005). Over the past few years of implementation, in addition to having low numbers of trained service providers with good interpersonal skills and recording practices, a significant bottleneck to successful provision of IPTp has been frequent stock outs of SP at facility level.

[14] The United Republic of Tanzania. Ministry of Health and Social welfare. National Community Based health programme policy guidelines. Towards sustainable cadre of Community Health Workers. February, 2014.

Interventions for the Specific Objective 2.3

2.3.1 Increase the uptake of IPTp2+ to reduce vulnerability in pregnancy

The focus of the strategy will be to increase the number of women accessing IPTp2 through (1) improved supply chain management of SP; (2) IPTp administration at each scheduled ANC visit; (3) improved capacity of healthcare providers through training and supervision; and (4) improved frequency of ANC attendance. Pregnant women attending ANC also will be encouraged to take medicine to prevent anaemia and will be targeted to increase their access to LLIN through discount voucher or alternative schemes.

2.3.2 Reduce vulnerability among other vulnerable groups: people with sickle cell, people with HIV, non-immune travellers, and infants

Currently, there are no effective pharmaceutical options to reduce vulnerability in infancy and childhood for the east African region[15]. This is largely due to the lack of medicines with the ideal profile (providing adequate parasite clearance in single dose, fixed dose combination regimens, safe and well tolerated). In Tanzania the operational research agenda should include effective chemo-preventive targeted initiatives in appropriate epidemiological areas whenever an appropriate medicine will be available. NMCP, in consultation with partners, will consider introducing eventually new preventive therapies in the public health system if operational research will provide evidence for their effective and safe utilization.

Likewise, there are no effective chemoprophylaxis options for sickle cell anaemia patients. Due to their vulnerability to severe malaria, the most important approach to decrease their susceptibility is early diagnosis and treatment. Researchers should be encouraged to provide evidence on alternative medicines for malaria prophylaxis.

Preventive therapies should target people living with HIV/AIDS are targeted in accordance with National AIDS Control Programme (NACP) and NMCP guidelines. Pregnant women living with HIV/AIDS should follow the PMTCT and NMCP guidelines and should take daily co-trimoxazole preventive therapy.

Travellers or migrants coming from areas with little or no malaria transmission are advised to take malaria-suppressive prophylaxis.

2.3.3 In the event of the introduction of a malaria vaccine, the country is able to rapidly scale up its use

Reduction in vulnerability of infant and young children through the introduction of malaria vaccine is an attractive public health initiative, and its introduction will be assessed and considered during the implementation of this strategic plan.The National Malaria Steering Committee (NMSC) will spearhead a consultative process to promote an innovative delivery of potential vaccines once pre-qualified by WHO within the healthcare system. EPI/IVD would be the responsible unit to to set up and oversee the intervention delivery within the healthcare system

Specific Objective 2.4: Ensure that commodities used in malaria patient care and prevention are consistently safe, quality assured and available in at least 90% of the points of care by 2020

Uninterrupted supply of malaria medicines and diagnostics is essential to provide quality healthcare for suspect malaria patients and, eventually, to avoid unnecessary deaths. A number of partners are involved in malaria commodities supply chain: (1) national institutions involved in quantification, registration, quality assurance, pharmacovigilance, storage and distribution such as National Malaria Control Programme, Pharmaceutical Service Section (PSS), Tanzania Food and Drug Authority (TFDA), Pharmacy Council (PC), Medical Store Departments

[15] Experiences in Sahel region show that infants and young children in areas with pronounced malaria seasonal transmission are effectively protected by Seasonal Malaria Chemoprevention (SMC)

(MSD), Private Health Laboratory Board (PHLB), National Health Laboratory and Quality Assurance Training Centre (NHLQATC); (2) district and health facilities teams, responsible for efficient commodities requisition and reporting.; and (3) global level funding initiatives (GFATM, PMI), procurement agencies (Voluntary Pooled Procurement - VPP) and quality assurance mechanisms (GMP certification).

Standardized paper-based and electronic platforms (ILS and e-ILS) are used to facilitate and control the management supplies at healthcare facility, council, and MSD level. Mobile phone based platforms, currently SMS for life (SfL) and ILS gateway (ILSg), are also contributing to real time assessments of the supply chain.

Several bottlenecks have been identified in the procurement and supply chain of case management commodities: (1) late release of funds from global funding initiatives due to delay in submission and approval of reporting requirements; (2) long and cumbersome procurement process; (3) delay in delivery goods from manufacturers; (4) complex and lengthy logistics to distribute commodities from MSD central to zonal stores; (5) failure to submit appropriate requisition from healthcare facilities; and (6) erratic supply chain from zonal MSD to district and consequently to healthcare facilities. Interrupted supply chain cycle resulting in frequent commodities push delivery and failure to respond to the critical situation were the consequent outcomes resulting in frequent stock outs.

Interventions for the Specific Objective 2.4

2.4.1 Facilitate malaria commodities procurement process as indicated by the comprehensive annual quantification through the provision of timely ordering and clear delivery schedule to the selected procurement agency

NMCP will work with global, regional, and national institutions, implementing partners, and agencies to eliminate the identified supply chain bottlenecks and to maintain a constant flow of essential malaria diagnosis and treatment commodities to all healthcare facilities in the country. The current strategy focuses on the following implementation priorities: (1) perform semi-annual adjusted consumption-based quantification for all antimalarials and diagnostics in collaboration with PSS, MSD, and implementing technical partners; (2) maintain efficient logistics for appropriate storage and timely transportation and delivery of malaria commodities to public health facilities through the delegated country authority (MSD); (3) improve management of the supply chain through improved capacity of healthcare workers; and (4) maintain private-sector access to affordable and quality facilities for malaria case management by facilitating low-cost/subsidized schemes through global partnerships.

2.4.2 Improve logistic information system to facilitate the commodities supply chain from MSD to healthcare facilities and to respond to stock-outs

Multiple partnerships will be promoted to improve the malaria commodities information system: (1) at the MSD level, NMCP and partners will constantly monitor the flow of information, expected shipments, received goods, stock levels, and distribution to zonal stores and healthcare facilities; (2) at the NMCP level, a system to monitor accessibility and availability of malaria commodities will be consolidated and used through the existing electronic platforms (SMS for Life [SFL] and integrated logistics system [ILS] gateway) and regular stock verification at the zonal MSD level; (3) at district and health facility levels, specific, periodic surveys will be promoted to monitor the efficiency of the logistic system in the public and private sectors. The current and anticipated initiatives will include (1) end-use verification surveys; (2) assessment of service provision at healthcare facilities; (3) spot-checks at all levels of the supply chain; and (4) batch tracking surveys. Specific periodic surveys will be promoted to monitor the efficiency of the logistic system in the public and private sectors.

PSS and NMCP, in collaboration with implementing partners, will promote and maintain a system for ordering, supply, accounting, and loss of malaria commodities.

2.4.3 Eliminate counterfeit, suboptimal, substandard products through monitoring and regulation reinforcement

NMCP, through national regulatory authorities (Tanzania Food and Drug Authority [TFDA], Private Health Laboratory Board (PHLB), Pharmacy Board (PB) and, national Health Laboratory Quality Assurance Training Centre (NHLQATC) will ensure that a continuous quality assurance system is in place and it is properly running. In particular, NMCP will liaise with the TFDA to make sure antimalarials from both public and private sectors are continuously tested to assess their quality. Dissemination of the information will be assured through the existing governance arrangements.

2.4.4 Facilitate the relevant authorities to regularly conduct pharmacovigilance for antimalarial medicines

Pharmacovigilance is a core function of TFDA. NMCP will assist TFDA to reinforce the passive pharmacovigilance system by promoting the use of drug adverse reaction notification system in healthcare facilities through training opportunities and supportive supervision.

Specific Objective 2.5: Deploy appropriate malaria case management interventions in at least 90% of outbreaks and resurgence situations by 2020 to reduce the risk of severe morbidity and mortality

The changed epidemiology of malaria in Tanzania presents a few scenarios were malaria case management should be delivered with different modalities compared to the conventional, individual-based approaches presented above: (1) resurgence of malaria transmission in areas previously controlled, (2) incumbent malaria epidemics, and (3) identified persistent transmission foci in areas of extremely low transmission. Response to the above epidemiological circumstances should be considered in the implementation of this strategic plan.

Interventions for the Specific Objective 2.5

2.5.1 Select and provide appropriate community level mass fever screening, test, and treatment initiatives as response to emergency situation

Following a malaria epidemic detection, investigation, and notification, an appropriate case management approach will be established to mitigate the effects of the epidemic in the community, especially occurrence of severe morbidity and mortality. The recommended community-level case management interventions are included in the malaria diagnosis and treatment guidelines and in the malaria surveillance and response guidelines. Health management councils and healthcare facilities teams in the identified epidemiological areas will be adequately trained and supported by NMCP and partners**.** Contingency malaria commodities stock will be established at the appropriate level.

2.5.2 Implement malaria patient follow-up and active case detection in identified transmission foci in low endemic areas

Malaria patients in areas with extremely low transmission malaria cases will be adequately followed up and a system of active case detection will be established.

Component 3: Behaviour Change Communication and Advocacy

The Behaviour Change Communication (BCC) and Advocacy component of the strategy supports the implementation of the technical strategies. BCC promotes positive behaviour for prevention, health seeking, and treatment and enables community members to make informed choices that will result in improved health and

more effective services. This is only possible if the environment in which communities function is conducive (i.e., quality services are available; pro-malaria policies and guidelines are in place; plans and budgets include all necessary interventions for malaria control; the social and cultural norms encourage positive behaviour; communities initiate and take action to control malaria; and individuals have the right knowledge and mind-set to take appropriate action).

The primary audiences for the BCC interventions are the populations for whom the primary behaviour change is expected to take place. These populations include people living in all transmission strata. Where needed, interventions will be tailored to address specific needs in different sub-groups, taking into account specific vulnerability, regional variations, and differences between urban and rural populations, level of education, and wealth quintile. The secondary audiences of the BCC strategy are all those who influence the primary audience and those who are instrumental in creating an environment conducive for action, including policy- and decision-makers, teachers, healthcare workers, and community leaders. The BCC strategy targets both primary and secondary audiences, using a range of communication channels, including mass media, community outreach, and interpersonal communication.

Strategic Objective

3. To create an enabling environment so that by 2020 at least 90% of individuals at risk from malaria are empowered to protect themselves and their families from malaria and seek proper and timely malaria-treatment if and when needed

Specific Objectives and Interventions

3.1 Reinforce and update knowledge amongst all community members in Tanzania about appropriate malaria prevention, testing and treatment and promote desired positive behaviours so that 95% of the population will know how to avoid and treat malaria by 2020
3.2 Increase knowledge amongst at least 90% of vulnerable population with elevated risk of malaria infection about their specific risk and the prevention and treatment options available to them by 2020
3.3 Influence social norms about healthy behaviours around malaria prevention and care, and encourage communities to initiate and implement community-based malaria control interventions
3.4 Create strong BCC public private partnership to maximize efforts, ensure consistency in approach, and avoid duplication
3.5 Raise the profile of malaria amongst policy and decision makers at all levels so that80% of national, regional and district plans include appropriate interventions and sufficient budget to implement the malaria strategy

Specific Objective 3.1: Reinforce and update knowledge amongst all community members in Tanzania about appropriate malaria prevention, testing and treatment and promote desired positive behaviours so that 95% of the population will know how to avoid and treat malaria by 2020

General awareness of malaria and understanding of prevention are almost universal in Tanzania, and positive attitudes towards malaria control are prevalent. The focus of the BCC will build on pre-existing knowledge, reinforce understanding of desired behaviours, and promote action by community members through interpersonal communication. The main entry point to the households will be through the existing ward and village structures, (including village healthcare workers, health assistants, and Community Change Agents), health facilities, and schools. The interpersonal communication will focus on changing attitudes and encouraging positive behaviours.

The content of the messaging will be determined by the two technical strategies of malaria prevention and case management, described above.

Interventions for the Specific Objective 3.1

3.1.1 Improve capacity of healthcare workers to effectively provide accurate and relevant information to patients on desired behaviours for malaria prevention and treatment

Healthcare workers are a crucial source of information, especially amongst the lowest wealth quintiles and those with the lowest level of education. NMCP will add a BCC component into all existing malaria training programmes provided to healthcare workers. This effort will ensure that BCC is fully integrated into the two key technical strategies and becomes an integral part of interactions between healthcare workers and patients.

Similarly, school teachers are an ideal entry point to reach young people with malaria messaging. NMCP will work in collaboration with the School Health Programme and Ministry of Education to ensure that updated malaria information is included in the teacher training and school curriculum.

3.1.2 Improve capacity of ward- and village-level health staff and extension workers to effectively provide accurate and relevant malaria information in their interaction with community members

Building on exiting community outreach programmes, village and ward staff will be trained on appropriate malaria messaging and effective communication methods. The training will be done through a cascade system involving NGOs, district councils, and CBOs. A range of communication materials on malaria messaging has already been developed which will be updated and further elaborated. These materials will be provided to the village and ward staff to use during household visits and village meetings. These activities will be aligned to the Community based health policy of the Ministry of Health.[16]

Specific Objective 3.2: Increase knowledge amongst at least 90% of vulnerable population with elevated risk of malaria infection about their specific risk and the prevention and treatment options available to them by 2020

Although all Tanzanians are potentially at risk from malaria, there are a number of sub-groups that have an elevated risk of malaria infection and complications, either due biological factors, co-existing diseases, or socio-economic or cultural reasons. These sub-groups will be targeted separately with specific communication interventions tailored to their needs, so that they understand and accept their specific situation and are empowered to access the relevant preventive therapy, treatment, and care..

Intervention for the Specific Objective 3.2

3.2.1 Improve capacity of healthcare workers to provide accurate and relevant information on specific malaria risks and appropriate action to biologically vulnerable groups during health visits

The groups that are biologically or genetically more susceptible to malaria infection due to lower immunity include pregnant women, infants and young children, people living with HIV/AIDS, and people with sickle cell anaemia. These sub-groups are best reached through the health system during their regular interaction with healthcare

[16] The United Republic of Tanzania. Ministry of Health and Social welfare. National Community Based health programme policy guidelines. Towards sustainable cadre of Community Health Workers. February, 2014.

workers. Specific messaging for these groups will be developed based on their specific needs as outlined in the two technical strategies above and will be incorporated into the healthcare worker curriculum.

3.2.2 Develop and implement outreach programme for socioeconomically vulnerable groups and hard-to-reach mobile populations in high-transmission areas

Groups in the lowest economic quintile and with the lowest education generally are more likely to face barriers to behaviour change, including lower availability, accessibility and affordability of services and products, and less exposure to media. The same barriers apply to mobile populations such as nomadic groups and migrants and displaced populations, including refugees. In some circumstances, there is also a social barrier in terms of acceptability of getting and using services or products, or practicing the desired behaviour. Peer education has been successful in reaching highly mobile, marginalized, and difficult-to-reach populations and can be applied to malaria control. Other options include interventions at shifting markets and during road shows. A separate outreach programme for these sub-groups will be developed, particularly for those living in high-transmission areas.

Specific Objective 3.3: Influence Social Norms about Healthy Behaviours around Malaria Prevention and Care and Encourage Communities to Initiate and Implement Community-Based Malaria Control Interventions

The behaviour of individuals is influenced by their peers, the social norms of their communities, and the context in which they live and work. This social setting can be influenced and moulded by people that are respected in the community. Actions and opinions of these influential people can play a strong role in creating and promoting positive social norms about healthy behaviours around malaria prevention, treatment, and care. The BCC strategy will capitalize on this and work through these influencers to create a conducive environment and create momentum for individual and community action.

Interventions for the Specific Objective 3.3

3.3.1 Engage local leadership as malaria ambassadors

NMCP will work with partners to develop a comprehensive set of malaria messages and materials that can be used by religious leaders, elected district councillors, school teachers, village leadership, and other influential persons in their interaction with community members. NCMP will work with NGOs, CBOs and FBOs to disseminate these messages and materials through a mix of channels, such as sermons, school curriculum, and radio. The PMORALG will be central to effectively deliver these messages at the district level.

3.3.2 Develop and implement mass campaign with influential people to spark action

NMCP will work with implementing partners to create and implement a mass campaign with special events with local celebrities (e.g., singers, actors and sport stars) with calls for action. NMCP will also engage the print and electronic media journalists to develop their capacity for responsible reporting.

Specific Objective 3.4: Create Strong BCC Partnership amongst Public and Private Sector Stakeholders to Maximize Efforts, Ensure Consistency in Approach and Avoid Duplication

BCC interventions are initiated by a multitude of private sector and public sector partners in different areas of the country. Given the range of communication mechanisms, the diversity of target audiences, and the different strata of malaria control, it is essential that BCC interventions are well coordinated and harmonized. NMCP will continue to encourage public and private sector stakeholders to actively promote and implement the national malaria control strategies within their “sphere of influence” and in line with agreed target areas.

Interventions for the Specific Objective 3.4

3.4.1 Provide a forum and strategic framework for BCC partners to ensure coordinated and harmonized implementation of the BCC strategy

All malaria communication activities by different stakeholders are guided by the Malaria Communication Plan (MCP) and coordinated by NMCP through the BCC Working Group. The MCS will be updated and a detailed operational plan will be developed with stakeholders. The BCC Working Group will continue to meet regularly and function as the main forum in which the different interventions and messages implemented by the different partners are discussed and reviewed.

3.4.2 Create a platform for private sector companies to provide malaria control services to their workforce and the communities in which they work

There are numerous large-scale private sector companies in Tanzania with large workforces that have a strong incentive to prevent malaria as it reduces worker productivity. As labourers interact with surrounding communities it is also essential for companies to address malaria transmission in those areas as part of their Corporate Social Responsibility (CSR) programmes. A private sector platform, called the Malaria Safe Programme, has been created for these companies to develop joint approaches. The programme is based on four pillars: education, protection, visibility and advocacy. Main interventions include protecting employees against malaria and educating them about prevention; by distributing LLINs to employees and their families and encouraging regular net use; and promoting malaria test and treatment according to guidelines.

3.4.3 Create a common framework to evaluate BCC interventions

NCMP will work with all stakeholders to ensure that BCC interventions by the different partners are regularly monitored and that indicators are aligned to allow comparison of interventions.

Specific Objective 3.5: Raise the profile of malaria amongst policy and decision makers at all levels so that 80% of national, regional and district plans include appropriate interventions and sufficient budget to implement the malaria strategy

The GoT has shown great political will to combat malaria internationally through the African Leaders Malaria Alliance (ALMA) and nationally in political speeches, dialogues and advocacy for malaria strategic directions. This commitment is a first step to ensuring that the national and district plans and budgets include sufficient funding to implement the malaria strategies. NMCP will initiate a series of advocacy interventions targeted at policy and decision-makers to translate the political commitment into tangible action plans and budgets.

Interventions for the Specific Objective 3.5

3.5.1 Engage politicians, and policy and decision-makers in political debate on malaria control

To increase the focus and budgetary allocation for malaria control, a comprehensive package of advocacy tools and interventions will be developed aimed at those in power. Target groups include Members of Parliament and ministers and senior managers of relevant ministries (including the MoHSW, Ministry of Finance and Economic Affairs, Ministry of Industry, Ministry of Agriculture, Ministry of Education, Regional Administrations, and local governments). Methods include public debates on radio and television with parliamentarians and politicians, as well as high-level promotional activities and field visits. Tools include malaria policy briefs and facts sheets outlining key issues, messaging, and concrete action points. The focus will be on including malaria on the political agenda during budget speeches of the different ministries.

Component 4: Surveillance, Monitoring, and Evaluation

Surveillance, Monitoring and Evaluation (SME) is a crosscutting component of the strategic plan and an essential activity to assure that accurate malaria-related information is gathered, analysed, and used to track performance and implementation progress. NMCP will update the SME plan, providing the guiding principles for a harmonized set of activities to verify the status of the strategic plan implementation. NMCP and partners will collect, analyse, and share global malaria core indicators, as indicated by the Monitoring and Evaluation Reference Group (MERG), as well as program-specific indicators to measure performance.

Operational research findings will be used for regular assessment and evaluation of the interventions, and the evidence generated will be used to fill gaps and help policy makers to make appropriate, informed decisions.

Strategic Objective

4. To provide timely and reliable information to assess progress towards the set global and national targets, to ensure resources are used in the most cost-effective manner, and to account for investments made in malaria control

The Specific Objectives and Interventions

4.1 Improve quality, completeness, and timeliness of malaria indicators within the routine health information system to reach 90% of health facilities reporting monthly through the HMIS by 2020

4.2 Establish a comprehensive framework for collecting, processing and storing essential malaria indicators from periodic service delivery and programmatic surveys

4.3 Establish and maintain a comprehensive and effective malaria knowledge management system to collate, interpret, disseminate, and promote the use of quality malaria data for evidence-based decision making at national and district level

4.4 Design and support the implementation of a comprehensive malaria surveillance and response system for epidemic-prone districts to ensure that 80% of malaria epidemics are responded within two weeks from the onset by 2020

Specific Objective 4.1: Improve quality, completeness, and timeliness of malaria indicators within the routine health information system to reach 90% of health facilities reporting monthly through the HMIS by 2020

The HMIS and the IDSR system are the two data systems established by the MoHSW to collect routine SME data from healthcare facilities. The main malaria indicators are included in the existing HMIS and IDSR framework. Specific malaria modules are complementing the two main platforms with some additional essential malaria specific indicators. The establishment of a common electronic platform, through the District Health Information System (DHIS), is vital for achieving and maintaining reliable data collection, timing reporting, and updated outputs. DHIS is also crucial for real time data analysis. Current data collection and reporting in the private health sector are inadequate due to low involvement and commitment.

The MoHSW is undertaking other initiatives to improve the situation. The Pharmaceutical Service Section (PSS) of the MoHSW adopted an electronic Integrated Logistics System (eILS) to improve pharmaceutical commodities management. Two initiatives within the eILS, are currently undertaken to monitor the status of supplies: SMS for

Life (SfL) and ILS gateway (IG). NMCP is actively involved in the delivery and utilization of the services provided by the two initiatives and will promote a full integration within the DHIS.

The Diagnostic Service Section (DSS) of the MoHSW has established a countrywide a comprehensive diagnostic information system (DIS) in all laboratory services. NMCP expects to collaborate with the DSS to collect timely and complete quality malaria laboratory information.

Interventions for the Specific Objective 4.1

4.1.1 Support HMIS/DHIS units in the MoHSW to improve quality of reporting malaria indicators and roll out of the electronic DHIS platform at all levels

NMCP will continue to collaborate and support the HMIS and IDSR units to improve the quality and timeliness of routine data collected. Electronic platforms will be expanded through DHIS to improve data management and to provide real-time outputs, including charts and maps, for data analysis, interpretation, and use. Private health sector reporting will be strengthened through a complete involvement in the routine reporting systems. The Integrated platform for malaria SME through DHIS will include all malaria-related data collected and indicators generated. Weekly and monthly epidemiological, service delivery, and logistic data will be linked through DHIS at various level of healthcare delivery. Web- and desktop-based outputs will be provided from healthcare facilities to the national level

NMCP and partners will be involved in providing training to healthcare workers in information management at different level. DHIS utilization will be promoted from the national to the district level. All regional and district malaria focal points will be enabled to regularly access the DHIS and make use of the information for improving malaria service delivery. NMCP will appoint a dedicated person to liaise daily with HMIS/IDSR/DHIS.

4.1.2 Develop Quality Assurance/Control System For Data Auditing And Verification

The received weekly and monthly data will be sampled for data auditing and verification during routine supervision.

Specific Objective 4.2: Establish a comprehensive framework for collecting, processing and storing essential malaria indicators from periodic service delivery and programmatic surveys

NMCP, in collaboration with malaria stakeholders, is currently engaged in coordinating a number of initiatives to collect, analyse, and interpret periodic surveys for malaria-related indicators. Impact and outcome indicators are principally made available through national representative surveys conducted by the NBS, mainly Tanzania Demographic and Health Survey (TDHS), THMIS, and Tanzania Service Provision Assessment (TSPA). Those surveys are performed regularly at fixed interval usually every 4-5 years. These surveys are collecting the core impact and outcome indicators to assess the long term progress towards the achievements of malaria control strategic objectives.

Other relevant programmatic indicators are collected by partners and research institutions to evaluate antimalarial efficacy and insecticide susceptibility in national sentinel sites. Outputs indicators for national and sub-national initiatives, such as vector control interventions, including LLIN, IRS, and LSM are collected by the implementing partners and evaluated through regular surveys by research institutions.

Four major areas are currently not, or only partially, covered by periodic and routine information systems: (1) quality of malaria case management in healthcare facilities; (2) malaria case management commodities monitoring in the private sector; (3) continuous longitudinal parasitological prevalence; and (4) comprehensive longitudinal entomological monitoring. NMCP plans to address these challenging initiatives in the course of the implementation of this strategic plan.

Interventions for the Specific Objective 4.2

4.2.1 Establish selected sentinel districts/sites to capture non-routine malaria data on quality of care

Sentinel districts will be selected to perform regular surveys on quality-of-care indicators for malaria diagnosis and treatment. These sites will collect data on appropriate case management according to guidelines as well as indicators not included in the routine HMIS (e.g., adherence to testing results, prescription habits, commodities storage and distribution practices, data validation). The private sector will be included in the surveys, and NMCP will assess these data biannually. In addition, NMCP together with partners will conduct regular end user verification and commodities tracking.

4.2.2 Collaborate with the National Bureau of Statistics to ensure the regular national representative population surveys and other specific sub-national surveys include relevant malaria indicators

NMCP will continue to collaborate with NBS to prepare, conduct, and disseminate the well-established national and sub-national representative surveys such as the TDHS, THMIS, and TSPA.

4.2.3 Establish countrywide longitudinal vigilance of malaria parasitaemia in sentinel population: pregnant women and infants at RCH clinics, school-age children

Two major parasitological surveillance initiatives in sentinel population will be conducted during the implementation of this strategic plan: (1) longitudinal assessment of malaria parasitaemia in pregnant women and children under five will be scaled up to all RCH clinics, and (2) longitudinal malaria parasitaemia prevalence in school age children will be assessed in selected nationally representative primary schools. The initiatives will be implemented in collaboration with CHMTs and research institutions. Sentinel population parasitological surveillance will be providing continuous assessment of the status of malaria control and seasonal and geographical malaria risk mapping.

4.2.4 Establish and expand longitudinal monitoring of mosquito population dynamics and behaviour in sentinel sites and strengthen surveillance of insecticide susceptibility

Longitudinal entomological monitoring and insecticide susceptibility test will be implemented in collaboration with research institutions in sentinel sites countrywide. NIMR will continue to coordinate the institutions and provide capacity building to district-based entomological teams. Insecticide resistance test will be carried out annually in conformity with the standard WHO guidelines. Core vector population indicators will be selected to monitor continuously mosquito composition and dynamics.

4.2.5 Coordinate and oversee the implementation of standard antimalarial efficacy tests as per WHO guidelines by national research institutions

Standard antimalarial efficacy tests as per WHO guidelines will be conducted in alternating years to monitor the recommended antimalarials. Molecular biology markers also will be collected to monitor resistance markers of drugs used for chemoprevention. NMCP will coordinate all the research work by the different institutions

4.2.6 Coordinate the collection, use, and interpretation of the programmatic monitoring of vector control initiatives (including LLINs, IRS, and LSM)

Routine monitoring of programmatic indicators of vector control programmes will be conducted by implementing partners. NMCP will coordinate the collection, use, and interpretation of the results. A standard set of indicators will be proposed for the initiatives. (See also Component 1 above.)

4.2.7 Regularly update malaria epidemiological profile

In 2013 NMCP, in collaboration with KEMRI Welcome trust and IHI, developed an epidemiological profile for malaria and its control. The document provides a series of malaria risk maps and related action points. The malaria epidemiological profile (2013) will be updated every two years.

Specific Objective 4.3: Establish and maintain a comprehensive and effective malaria knowledge management system to collate, interpret, disseminate, and promote the use of quality malaria data for evidence-based decision making at national and district level

Malaria SME initiatives are implemented by multiple partners and institutions at different levels. This malaria knowledge needs to be managed through a system which covers all aspects of knowledge strategy, identification, storage, and sharing. Currently much of the malaria data are fragmented, stored with different institutions, and not readily available for sharing or use. NMCP will undertake a series of strategic interventions which jointly will constitute a Malaria Knowledge Management Plan.

Interventions for the Specific Objective 4.3

4.3.1 Establish a national SME Partnership Framework

The national framework for the implementation of SME activities will include an updated SME Plan, a revitalised governance structure, and a Malaria Operational Research Agenda. The framework will provide technical guidance to ensure that malaria data collection, assessment tools, and monitoring and evaluation initiatives are coordinated and standardized. NMCP has developed an SME plan and has established a malaria SME technical working group (TWG) and network. A malaria operational research agenda will be developed by NMCP and research partners to include essential research initiatives to guide the strategic plan implementation and provide evidence for innovative initiatives. The agenda and the identified operational research priorities will form the bases for resource mobilization.

4.3.2 Develop a national malaria data management plan and data repository to enable evidence-based decision making at all levels

A data management unit will be established within the NMCP which will be responsible for systematic malaria data management. The Unit will develop a malaria data management plan outlining how the different sources of malaria data can be consolidated, stored, and regularly updated. NMCP plans to develop a national composite malaria database (or “knowledge warehouse”) which brings together all the relevant databases in a manner that is user-friendly and easily accessible.

4.3.3 Undertake periodic malaria program reviews and evaluation of the implementation of malaria strategic plan

A midterm and a final programme review will be conducted to evaluate the status of the strategic plan implementation. This review will provide crucial information needed to update and adapt the malaria strategy where needed.

Specific Objective 4.4: Design and support the implementation of a comprehensive malaria surveillance and response system for epidemic-prone districts to ensure that 80% of malaria epidemics are responded within two weeks from the onset by 2020

A consequence of the changed malaria epidemiology in Tanzania is the expansion of areas with transmission instability and the consequent increased risk of malaria outbreaks and malaria resurgence. See also Chapter 2 *Epidemiology of Malaria*. A comprehensive surveillance system will need to be developed and put in place in these

areas. Districts should have the capacity to respond immediately after an epidemic has been detected and to effectively contain it within two weeks.

Interventions for the Specific Objective 4.4

4.4.1 Mapping malaria epidemic prone districts including identification of epidemic "hot spots" and investigation of local epidemic predisposing factors

NMCP will map epidemic hot spots using the recently developed Malaria Epidemiological Profile which provides ward-level transmission information. This mapping exercise will be discussed with the relevant district and will form the basis for a national contingency supply stock for epidemic containment. Post-epidemic assessment will be encouraged to further investigate local epidemic dynamics and to establish pre-emptive control measure.

4.4.2 Establish Malaria Epidemic Early Warning System and a Malaria Epidemic Early Detection System

A malaria epidemic early warning system (MEEWS), malaria early detection system (MEEDS), and rapid response is important to quickly reduce malaria burden in the event of malaria epidemics. NMCP plans to establish MEEWs and MEEDS in the epidemic-prone districts, including protocols for the production of alerts and action thresholds that will initiate field verifications and investigations.

MEEWS will capitalize from weather information and other potential threats, such as interruption of malaria control services that may be able to trigger malaria outbreaks. The essential component for functional MEEDS is proper and timely routine HMIS/IDSR data management plotted to detect an epidemic.

4.4.3 Strengthen Capacity for malaria epidemics containment at district and health facility level in epidemic prone districts

NMCP will develop guidelines for malaria epidemics prevention and control and a capacity building plan for the relevant districts. NMCP and partners will roll out a capacity building plan to improve capacity at district and health facility levels to respond to incumbent epidemics. Training will include development of a district-specific epidemics preparedness plan, SOPs, and medical supplies contingencies.

4.4.4 Implement malaria outbreaks response operations when and where necessary

The councils will be responsible for immediate response activities after the detection of a malaria outbreak. Immediate actions to provide appropriate malaria case management are needed to mitigate severe morbidity and mortality (see component 2, specific objective 2.5). Appropriate BCC initiatives are crucial to assure adequate engagement of the community in the response. Effective vector control measures should be taken into consideration according to local capacity and opportunities, especially after epidemic early warning, to pre-empt transmission, rather than an early detection.

Component 5: NMCP Programme Management, Partnership Development, and Resource Mobilization

The NMCP requires a strong programme management capacity to effectively and efficiently execute its role as the focal point for planning, coordination, resource mobilisation, and staff development for malaria control. The recent Malaria Programme Performance Review[17] conducted revealed a number of challenges in the overall coordination of the programme in regard to management of the massive funding generated in recent years.

[17] *Malaria Programme Performance Review Tanzania Mainland*; MoHSW; April 2012.

The planning of interventions should be collaborative, and all interventions should be organised in a single comprehensive plan at each level to be efficient and effective. For quality implementation and coordination, each level should be accorded with adequately skilled human resource that would be able to either execute or oversee implementation. Cost-effective control measures should be installed to ensure strict adherence to standard procedures and implementation.

Strategic Objective

5. Efficient programmatic and financial management of malaria control interventions at all levels, implemented through effective and accountable partnerships with adequate funding to reach an overall programme performance rate of A+

Specific Objectives

5.1 Improve the effectiveness and accountability of malaria control implementation by strengthening partnerships and cooperation with malaria control stakeholders at all levels to successfully implement 90% of the interventions within the annual plan

5.2 Increase the level of resource mobilization to fund the strategic plan, according to the programmatic needs to ensure that 90% of the strategic plan budget is funded by 2020

5.3 Promote a harmonized regional and inter-sectoral approach to malaria control so that at least 4 action plans will be developed by 2020

Specific Objective 5.1: Improve the effectiveness and accountability of malaria control implementation by strengthening partnerships and cooperation with malaria control stakeholders at all levels to successfully implement 90% of the interventions within the annual plan

The main role of NMCP is to develop policies, strategies, and guidelines, as well as to provide oversight of the national malaria projects and programmes. The main responsibility for the implementation of the strategic interventions lies with the regional and local government authorities, with support from national and international implementing partners. NMCP will undertake a series of strategic interventions to ensure that all malaria control interventions are designed and implemented in line with the strategies outlined in this plan.

Interventions for the Specific Objective 5.1

5.1.1 Improve coordination and governance structures at national, regional, and district levels

The NMCP will establish a new malaria governance and coordination structure composed of one malaria steering committee and two technical sub-committees with technical working groups (*see Chapter 5* Implementation Arrangements). All existing functioning committees will be merged into these new structures. In addition, NMCP will continue conducting periodic zonal review meetings with regional and local government authorities on the implementation of the malaria interventions at district and community levels.

5.1.2 Develop and disseminate strategies and updated implementation guidelines

The NMCP will develop and update the different technical plans and implementation guidelines, as outlined in the technical and supportive strategies above. NMCP will disseminate these documents to all relevant implementing entities and, when necessary, hold sensitization meetings and provide trainings.

5.1.3 Strengthen human resources capacity for effective programme management at national level

NMCP will develop three core documents to form the basis of comprehensive capacity strengthening of the NMCP: (1) NMCP Staffing Plan, (2) Training Needs Assessment (TNA), and (3) Continuous Learning Programme. The Staffing Plan will provide an objective analysis of staffing needs in terms of numbers of positions as well as skills-mix required for NMCP to successfully implement this strategic plan. A Training Needs Assessment will be conducted amongst existing and new NMCP staff to assess the gap between current skills and experience and the requirements of the job, convert the training gaps into training objectives, and identify training needs. A Continuous Learning Programme for NMCP staff will be developed based on the outcome of the TNA, which will include formal training, mentorship, and on-the-job training support in collaboration with technical partners and implementing agencies. NMCP also will work with research and academic institutions on developing expertise through post-graduate operational research training.

5.1.4 Enhance supervision and verification systems involving implementing entities at various levels

The main responsibility for supervision of (malaria control) interventions by the health facilities falls under the local government authorities. The role of the NMCP is to ensure that supervision by regional and district health management teams is conducted effectively and that the reports generated are accurate, complete, and timely. NMCP will (1) update and improve the supervision tools and checklists to be used by the regional and district teams during their supervision of health facilities, (2) conduct training for district data managers and malaria focal persons and training on data management and proper reporting, (3) work with regional and district authorities to ensure that there are sufficient resources in regional and district budgets for regular supervision visits, and (4) focus NMCP supervision visits to the districts on verification of data and financial reports, as well as on capacity building of district staff.

5.1.5 Build capacity of municipal and district councils in malaria planning and budgeting

NMCP will coordinate with partners supporting local government planning to ensure that malaria interventions are included in the CCHPs and budgets.

Specific Objective 5.2: Increase the level of resource mobilization to fund the strategic plan, according to the programmatic needs to ensure that 90% of the strategic plan budget is funded by 2020

Continuous and high-level funding is needed at all levels to achieve the goal of reducing malaria prevalence through the interventions outlined in this strategic plan. NMCP will undertake the following three strategic interventions to support resource mobilization for malaria control.

Interventions for the Specific Objective 5.2

5.2.1 Develop and implement a Comprehensive Malaria Resource Mobilisation Plan

NMCP will develop a Malaria Resource Mobilisation Plan to identify potential domestic and global resources for malaria control interventions and mechanisms to access these funds. This plan will take into account the finding of the Financial Sustainability Plan[18] developed in 2011. NMCP will develop and submit funding request/proposals to relevant government authorities, national and global institutions, and the private sector to finance the implementation of the strategic plan.

5.2.2 Develop and update comprehensive business and operational plans for malaria control

NMCP will develop a detailed and costed Annual Malaria Business Plan, with clear operational plans for each of the malaria control strategies. These plans will form the basis of all proposal development and resource mobilization efforts.

[18] Financial Sustainability Plan, Oct 2011; developed on behalf of NMCP by the Clinton Health Access Initiative

5.2.3 Improve NMCP capacity to develop successful funding of proposals and manage the implementation of the programmes

NMCP will organise trainings for key staff in proposal writing and budgeting, in collaboration with technical partners. Based on the Training Needs Assessment (see strategic intervention 5.1.3 above), further capacity strengthening support also will be organised in the areas of financial managements of grants, procurement processes, and reporting to prevent delays in programme implementation or problems with low absorption capacity.

Specific Objective 5.3: Promote a harmonized regional and inter-sectoral approach to malaria control so that at least 4 action plans will be developed by 2020

Malaria is a global disease which cuts across different sectors, necessitating cross-border as well as inter-sectoral collaboration.

Interventions for the Specific Objective 5.3

5.3.1 Develop a strategic framework for regional collaboration on malaria control

NMCP will promote the development of a strategic framework for identifying regional collaboration on malaria control, addressing issuing such as cross-border transmission, insecticide resistance, leakage, and smuggled drugs and products such as LLINs. The framework will include identification of current and planned regional interventions, an inventory of relevant organizations and actors, and a high-level action plan.

NMCP will continue to participate actively within the WHO Regional Committees and initiatives within the East Africa Community and the Southern Africa Development Community..

5.3.2 Develop Action Plans with relevant ministries outlining inter-sectoral malaria control intervention and targets

On a national level, effective malaria control needs to involve other sector ministries given the multiple facets of malaria prevention and control. NMCP will work closely with other sectors which have direct bearing on malaria prevention and control and identify areas of collaboration, including the office of Prime Minister, Environment; Ministry of Lands, Housing and Urban Development; Ministry of Agriculture; Ministry of Education; Ministry of Industries and Trade; Ministry of Natural Resources & Tourism; Ministry of Water and Livestock Development; and Ministry of Works. Where relevant and feasible, NMCP will assist the relevant ministries and institutions to jointly develop action plans outlining inter-sectoral malaria control interventions and targets.

CHAPTER 4: STRATIFICATION AND MALARIA CONTROL STRATEGIC OPTIONS

Malaria Stratification

Three major stratification categories relevant to malaria and its control have been identified: one over-arching strata related to malaria transmission and two sub-strata (malaria control operation and malaria vulnerability of the population) within the malaria transmission strata.

Malaria transmission strata depend on the main epidemiological determinants, including (1) expected current parasitaemia levels in the population; and (2) malaria transmission ecological suitability factors such as temperature, precipitation, and altitude. Three main transmission classes are identified in the country: (1) Malaria free, unstable transmission, and less than 1% parasite rate (PR); (2) Malaria low (1% to less than 10% PR) and moderate (10% to less than 50% PR) transmission; and (3) Malaria high (>50% PR) transmission

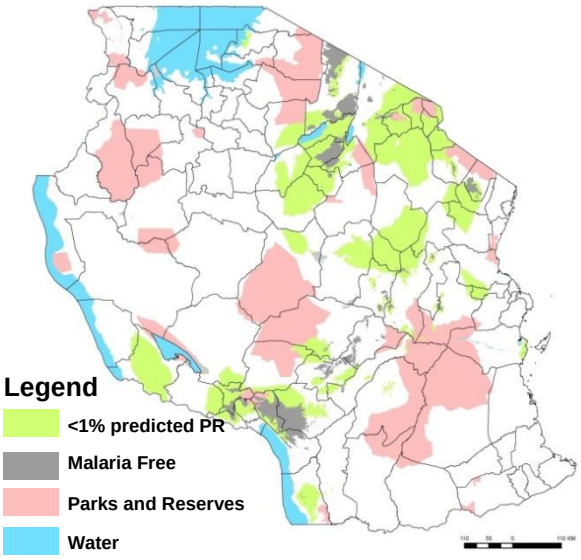
Malaria control operational setting strata are contingent on a variety of factors related to human population, habitat, malaria control measures, and vector biological determinants. These strata are geographically overlapping with the transmission strata but have distinct significance in respect to circumscribed malaria and its control initiatives. Settings include urban areas, districts in advanced sustained control phase, areas with high seasonal transmission, epidemic-prone areas, areas resilient to changes in malaria transmission over last 10 years, areas with insecticide resistance, specific economic and development projects, areas with limited access to healthcare services (hard to reach areas), and areas vulnerable to outbreaks and complex emergency.

Malaria biological and socioeconomic vulnerability of the population strata include groups within the community that are at greater risk of getting infected or developing a severe form of the disease. Vulnerability is determined either by biological factors mainly related to the immunity status or by the infection exposure risk. These groups are subsets of the population included in the other epidemiological and operational setting strata. They are mainly targeted by specific malaria preventive measures or alternative healthcare service delivery and include infants and children, pregnant women, school-age children, people living with HIV/AIDS, people with Sickle cell anaemia, non-immune travellers, populations with extremely low incomes, nomadic populations, refugees, and migrants.

For further description of the above strata and for their implication in malaria control intervention and further strategic options, see the NMSP main document.

Strategic Options in Malaria Epidemiological Transmission Strata

Figure 4: Malaria Control in Malaria Free, Unstable, and Very Low Transmission Areas



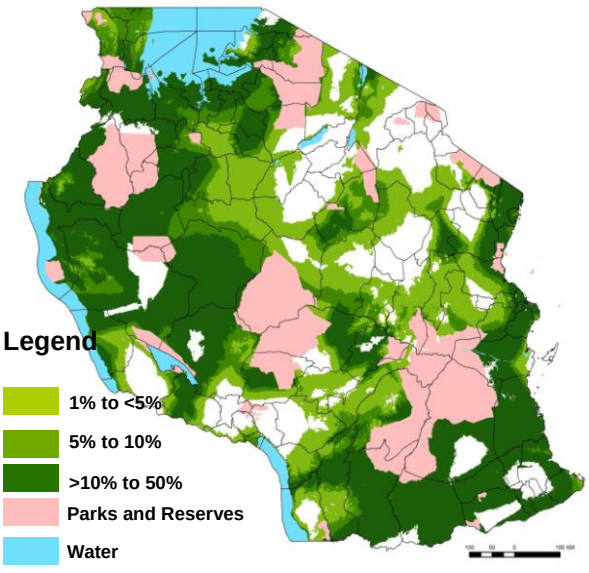
Malaria Free Areas (MFA): 4% of the country population, 1.6 million people, in 25 councils. More than 50% of the population of two districts (Makete and Mbulu) live in MFA. The other 11 districts have between 10% and 50% of the population living in MFA.

Unstable transmission areas: Very small proportion of the country population (0.02%) in nine districts.

Malaria very low transmission areas: (predicted *Pf*PR_{2-10} <1%) 22% of the country population (9.5 million people) in 57 district councils. Among them, 17 districts have more than 50% of the population living in low transmission areas.

Data Source and Map: Epidemiological Profile of Malaria and Its Control in Tanzania (NMCP 2013).

Figure 5: Malaria Control in Low and Moderate Transmission Areas



Hypo-endemic 1: (1% to <5% PR)

20.4% of the population (8.8 million people) across 81 districts

Hypo-endemic 2: (5& to <10% PR)

13.4% of the population (5.8 million people) across 82 districts

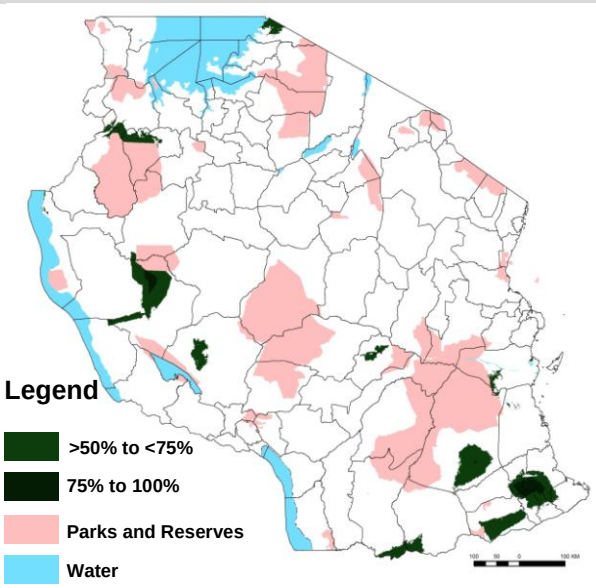
Meso-endemic: (10% to 50% PR)

38.5% of the population (16.8 million) across 85 districts

Cumulatively the three classes represent 72.2% of the population (31.3 million people).

Data Source and Map: Epidemiological Profile of Malaria and Its Control in Tanzania (NMCP 2013).

Figure 6: Malaria Control in High Transmission Areas



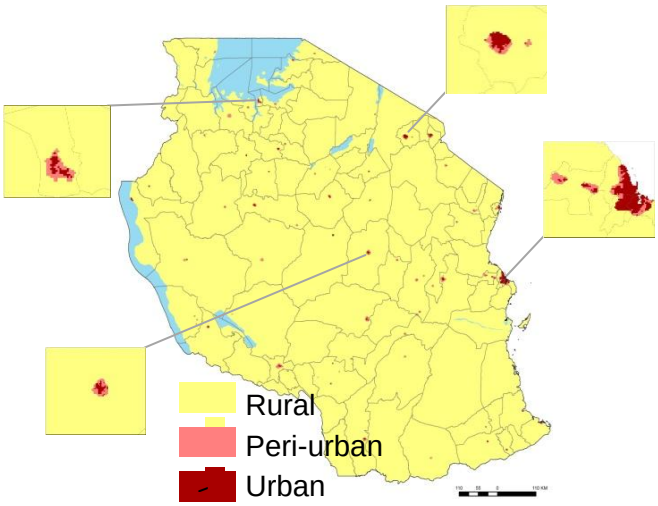
Areas supporting predicted Parasite Rate >50%. The strata include **holo-endemic** areas (50-<74% PR) and **hyper-endemic** areas (<75% PR).

Two percent of the population (0.9 million people) across 26 district councils is estimated to live in this epidemiological stratum.

Data Source and Map: Epidemiological Profile of Malaria and Its Control in Tanzania (NMCP 2013).

Strategic Options in Malaria Control Operational Strata

Figure 7: Malaria Control in Urban Areas



Data Source and Map: Epidemiological Profile of Malaria and Its Control in Tanzania (NMCP 2013).

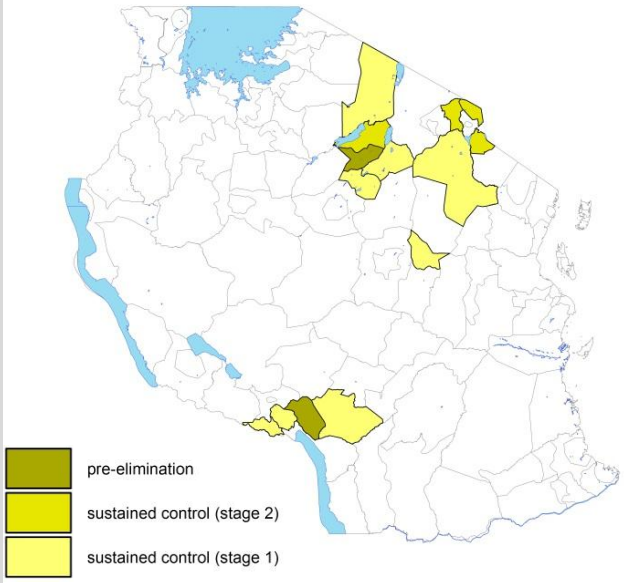
Strategic Options

Integrated malaria vector control: The commercial distribution of LLIN is an appropriate keep-up mechanism together with targeted mass campaign. Larval Source Management (LSM) using larviciding is recommended in major cities in moderate/high transmission areas such as DSM, Tanga, Mwanza, as well as in municipalities in in the same transmission areas: Musoma, Bukoba, Songea, Kigoma, Lindi, Mtwara, and Tabora. LSM is also recommended, but with a lower priority, in cities and municipalities in low transmission areas: Arusha, Moshi, Iringa, Mbeya, Singida, and Dodoma. Community-based initiatives to control breeding sites in urban and peri-urban settings are recommended as well.

Malaria diagnosis, treatment, and preventive therapies: due to the high penetration of the private sector in healthcare service provision in urban areas, it is essential to prioritize its involvement in delivery of quality and affordable diagnostic and treatment services in line with the national malaria case management guidelines. Targeted BCC for populations living in urban settings is essential to comply with the recommended diagnostics and therapies.

SME: Mapping urban focal transmission areas through school-based sentinel surveillance programmes and appropriate epidemiological and entomological monitoring for early warning and early detection of abnormal transmission are vital to improve malaria services in urban settings.

Figure 8: Malaria Control in Districts in Advanced Sustained Control Phase



Strategic Options

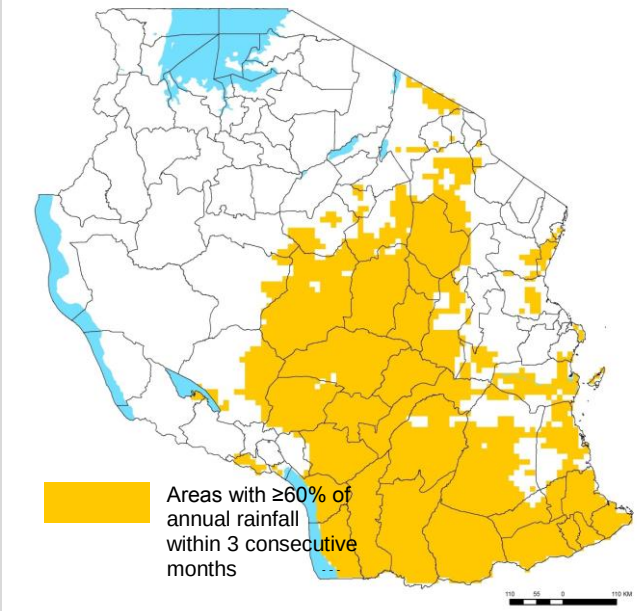
Detection of cases that includes individual malaria case notification; active case detection at household level; epidemiological investigation of every confirmed case, institution of a district malaria case register; continuing education and quality control for all public and private clinical services that diagnose and/or treat malaria; quality control of all laboratory services that diagnose malaria; intensified use of microscopy for species identification, detection of gametocytes, and determination of parasite densities.

Prevention of onward transmission including a series of intervention such as vector control aimed at reducing human–vector contact and the vectorial capacity of local mosquito vectors; case management (radical treatment) aimed at reducing the period of infectivity and the occurrence of secondary infections by using ACT and gametocytocidal medicines (e.g., primaquine) for *P. falciparum* infections.

Management of malaria foci: Tools for the management of malaria foci include vigilance, malaria surveys, geographical reconnaissance, vector control and entomological investigations, involvement of local authorities (such as local authorities taking over programme responsibilities for vector control), and community involvement.

Data Source: Epidemiological Profile of Malaria and Its Control in Tanzania (NMCP 2013), Map: NMCP (2013)

Figure 9: Malaria Control in Seasonal Transmission Areas



Strategic Options

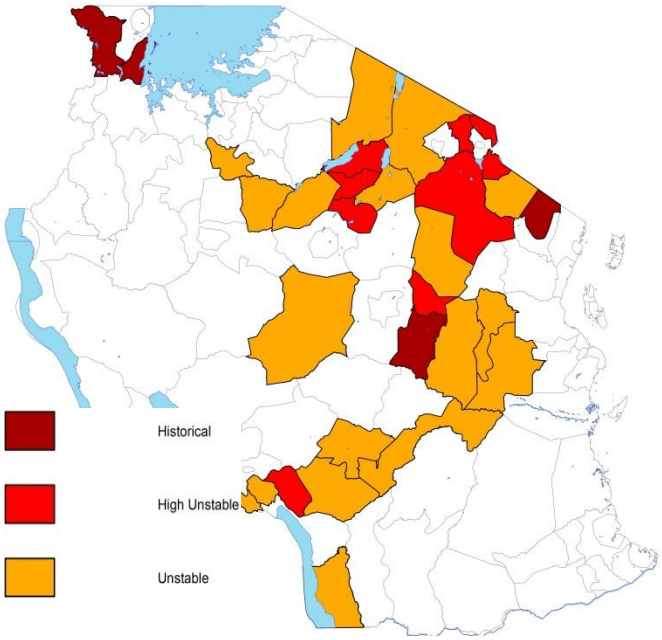
Integrated malaria vector control: LLINs are recommended in all seasonal transmission areas, irrespective of the transmission intensity. Targeted messages for BCC for net usage (large part of the year no vectors or low vector density) should be delivered. IRS is indicated in the eight southern districts with seasonal but high malaria transmission (Liwale, Tandahimba, Ruangwa, Masasi, Lindi, Newala, Tunduru, and Namtumbo); LSM may be considered during the dry season, if feasible.

Malaria diagnosis, treatment, and preventive therapies: the councils in this stratum should improve logistics to make sure that optimal stock status is in place before the transmission season. A malaria testing and treatment approach should be promoted even when transmission is low. Introduction of Seasonal Malaria Chemoprevention (SMC) in selected districts with high transmission intensity and resistance to change in malaria control should be further investigated and, eventually, promptly introduced.

SME: weather-based early warning (weekly) to anticipate the start of the transmission season and Improve preparedness are recommended as well as monitoring weekly epidemiological surveillance to detect the start and end of the transmission season.

Data Source and Map: Epidemiological Profile of Malaria and Its Control in Tanzania (NMCP 2013)

Figure 10: Malaria Control in Epidemic-Prone Districts



Strategic Options

Intensified Surveillance: Epidemic early warning and detection systems need to be established in all epidemic prone districts. Occurrence of extraordinary or unforeseen large-scale events related to possible abnormal malaria transmission should be monitored by the NMCP and promptly communicated to the respective RHMT and CHMT. Communities should be sensitized to provide necessary information to local authorities in the event of abnormal increase of febrile illness and, eventually, fatalities.

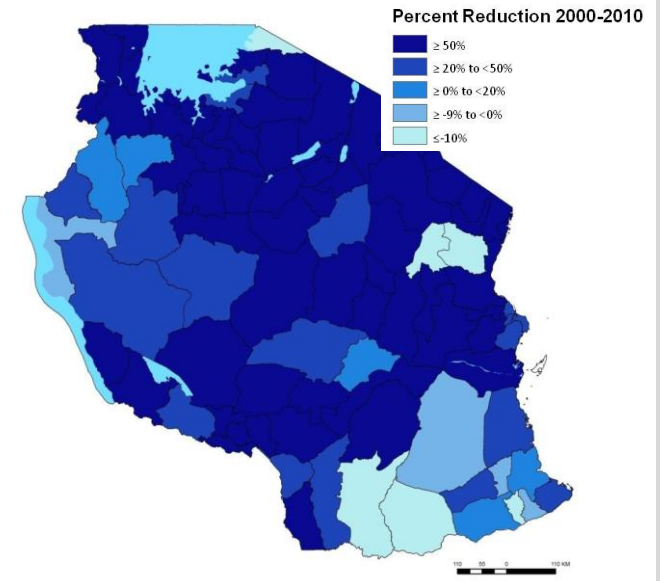
Epidemic Preparedness: Malaria epidemic-prone districts should be guided by NMCP to set up appropriate preparedness plans. A contingency stock of essential malaria therapeutics and diagnostics will be established in the zonal MSD.

Epidemic Response: District team will be adequately trained to perform immediately investigations after being alerted by the established malaria early epidemic detection system. The suggested control measures should be immediately (within two weeks from the alert) deployed and monitored.

Capacity Building: An intensive plan for capacity building at district level should be prepared and carried out by NMCP in the selected epidemic-prone districts. The district teams will be conducting the necessary training and support to the healthcare facilities level.

Data Source: Epidemiological Profile of Malaria and Its Control in Tanzania (NMCP 2013), Map: NMCP (2013)

Figure 11: Malaria Control in Areas Resilient to Malaria Transmission Changes



Strategic Options

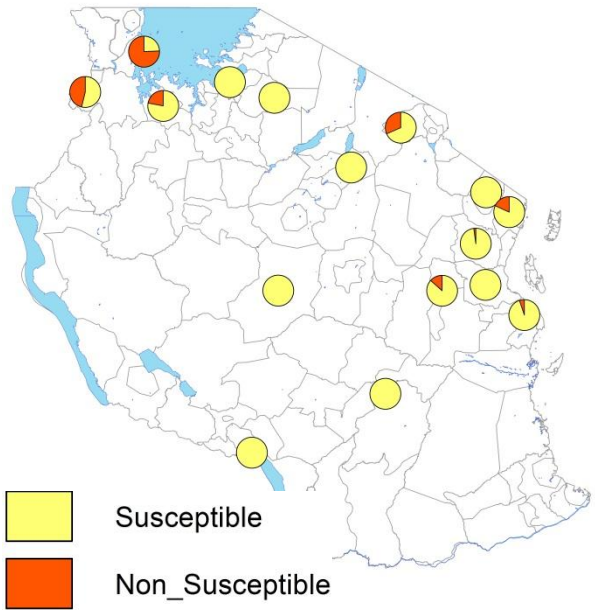
M&E: Local entomological factors as well as epidemiological and operational factors that negatively affect malaria control achievements in these areas, despite implementation of standard approaches, should be carefully investigated.

Integrated malaria vector control: Increased access to and use of LLINs is still the primary recommended vector control intervention. IRS is highly recommended in districts with consistent past lack of achievements with standard approaches: Kigoma, Ruangwa, Liwale, Tarime/Rorya, Tandahimba, Newala, Tunduru, Namtumbo, Handeni, and Kilindi. LSM should be judiciously introduced if there is evidence of outdoor transmission.

BCC: Should deliver targeted messages for BCC for adherence to vector control and treatment measures.

Data Source and Map: Epidemiological Profile of Malaria and Its Control in Tanzania (NMCP 2013)

Figure 12: Malaria Control in Areas with Insecticide Resistance



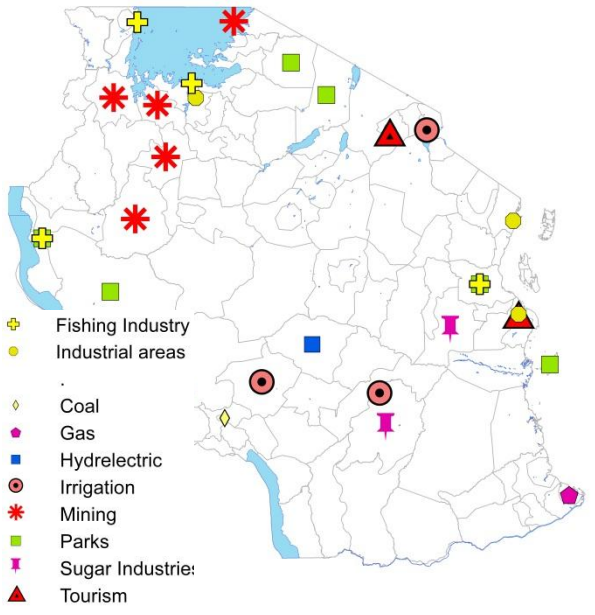
Strategic Options

Integrated malaria vector control: If high resistance is detected, judicious use of IRS with alternative class of insecticide according to insecticide resistance mitigation plan is recommended. Insecticide resistance testing should be intensified. Consistent use of LLIN, even if pyrethroid resistance is detected, is still recommended.

Intensified epidemiological surveillance: Should be emphasized due to the risk of malaria rebound or epidemics and to monitor the effect of insecticide resistance in malaria transmission.

Data Source and Map: NMCP (2013)

Figure 13: Malaria Control in Economic and Development Projects Areas



Strategic Options

Integrated malaria vector control: Advocate introduction of IRS in project areas; Targeted distribution of LLIN through private companies; LSM to be adopted for large projects involving excavation and environmental modification.

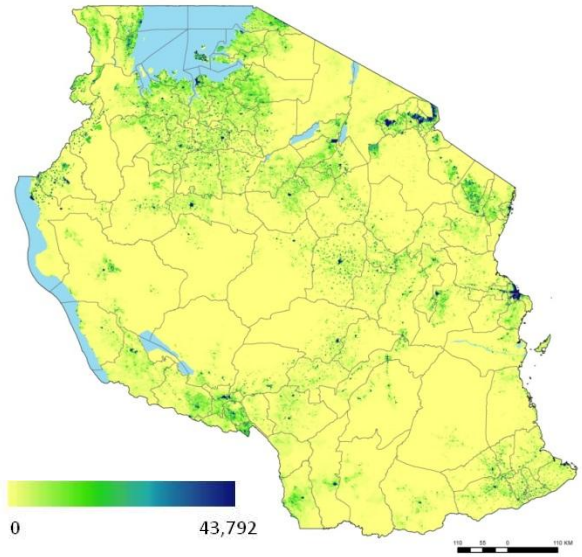
Malaria diagnosis, treatment, and preventive therapies: Promotion of a standardised approach to malaria diagnosis and treatment in company clinics as indicated by current national guidelines is recommended.

BCC: Development of BCC targeted messages according to the malaria safe company initiative; promotion of initiatives to involve communities surroundings large development projects.

SME: Ensure that companies are adhering to the set up malaria SME system through standard reporting modalities; include specific indicators to demonstrate outcomes and impact.

Data Source and Map: NMCP (2013)

Figure 14: Malaria Control in Areas with Limited Access to Healthcare Services (Hard-to-Reach Areas)



Strategic Options

Identify and map communities living far from health services.

Integrated vector control: Identify alternative LLIN distribution mechanism for populations with compromised access to healthcare service delivery.

Malaria diagnosis, treatment, and preventive therapies: Introduce appropriate community malaria case management schemes; work in collaboration with stakeholders to develop appropriate logistic and information systems.

BCC: Develop alternative interpersonal communication channels through the community-based healthcare delivery system.

Data Source and Map: Epidemiological Profile of Malaria and Its Control in Tanzania (NMCP 2013)

Strategic Options in Vulnerable Population Strata

Malaria Control for Infants and Children

The **strategic interventions** to improve malaria services for infants and children are based on innovative and evidence-based preventive therapies and vaccines if and where appropriate. Caretakers of infants and children should be targeted by appropriate BCC initiatives to improve early care seeking behaviour and use of LLIN. Infants and children attending Reproductive Health Clinics are the ideal sentinel population to monitor parasitaemia. This vulnerable group is targeted by special LLIN distribution mechanisms through RCH channels.

Malaria Control for Pregnant Women

The **strategic interventions** to improve malaria preventive and curative services for pregnant women are as follows: early diagnosis and prompt treatment, including anaemia, intermitted preventive treatment, anaemia prevention, and delivery of LLIN through RCH distribution mechanisms. Pregnant women attending RCH services are monitored for parasitaemia as part of the sentinel population surveillance.

Malaria Control for People Living with HIV/AIDS

The **strategic interventions** to improve malaria services for people living with HIV are as follows: standard indications for malaria diagnosis and treatment and vulnerability reduction for the HIV-affected population and for PMCT, as provided by the national guidelines; use of LLIN and other personal protection measure; and targeted messages on adherence and compliance with the suggested preventive therapy for reducing malaria vulnerability in eligible people living with HIV. Close collaboration and coordination with NACP and RCH sections of MoHSW and other stakeholders are required to implement and monitor the initiatives.

Malaria Control for Non-Immune Travellers

The **strategic interventions** to improve malaria services for non-immune travellers are as follows: chemo-prophylaxis as recommended by the national guidelines. Information on use of LLIN and other personal protection

measures to be delivered through the tourism industry, companies employing non-immune foreigners, by diplomatic missions, and at port of entry.

Malaria Control for School Children (5–15 Years)

The **strategic interventions** to improve malaria services for school age children are as follows: an advocated standard malaria case management approach, but it should be considered that school children in low transmission areas might be immunologically naïve and prone to abrupt severe malaria forms. This group should be considered through the School Net Programme as a vehicle for an LLIN keep-up strategy. The group can provide an ideal platform for regular prevalence surveillance.

Malaria Control for People with Sickle Cell Disease (SCD)

The **strategic interventions** to improve malaria services for sickle cell patients are as follows: since currently no suitable chemoprophylaxis options are available, early diagnosis and prompt care is necessary to avoid the occurrence of severe malaria. Facilitated distribution and use of LLIN is highly recommended. Specific BCC messages should be delivered for prompt treatment and preventive measures in clinical settings. Special case surveillance needs to be established in clinical settings for regular follow up of patients.

Malaria Control for Population Below Poverty Level

The **strategic interventions** to improve malaria services for population below poverty level are as follows: free LLIN distribution and other IMVC initiative according to epidemiological and operational strata, identification of population strata with extremely limited resources and income, provision of equitable and affordable malaria diagnosis and treatment, and establishment of community case management.

Effective use of healthcare workers and community workers is necessary to propagate the right messages for this economically vulnerable class. Alternative interpersonal communication channels should be Identified. Involvement of local government authorities and social welfare services may be required.

Malaria Control for Nomadic Populations and Mobile Populations

The **strategic interventions** to improve malaria services for nomadic communities are as follows: mobile clinic outreach, community LLIN delivery mechanisms, and peer education. Community-directed interventions should be the cardinal mechanism to deliver appropriate services to mobile populations.

Malaria Control for Refugees and Displaced Populations

The **strategic interventions** to improve malaria services for migrants, refugees, and displaced people are as follows: provision of testing and treatment services in the camps, including targeted distribution of LLINs; culturally appropriate BCC interventions through interpersonal communication and community interventions; and close monitoring of cases. All interventions should be provided in close collaboration with the organisations managing the camps.

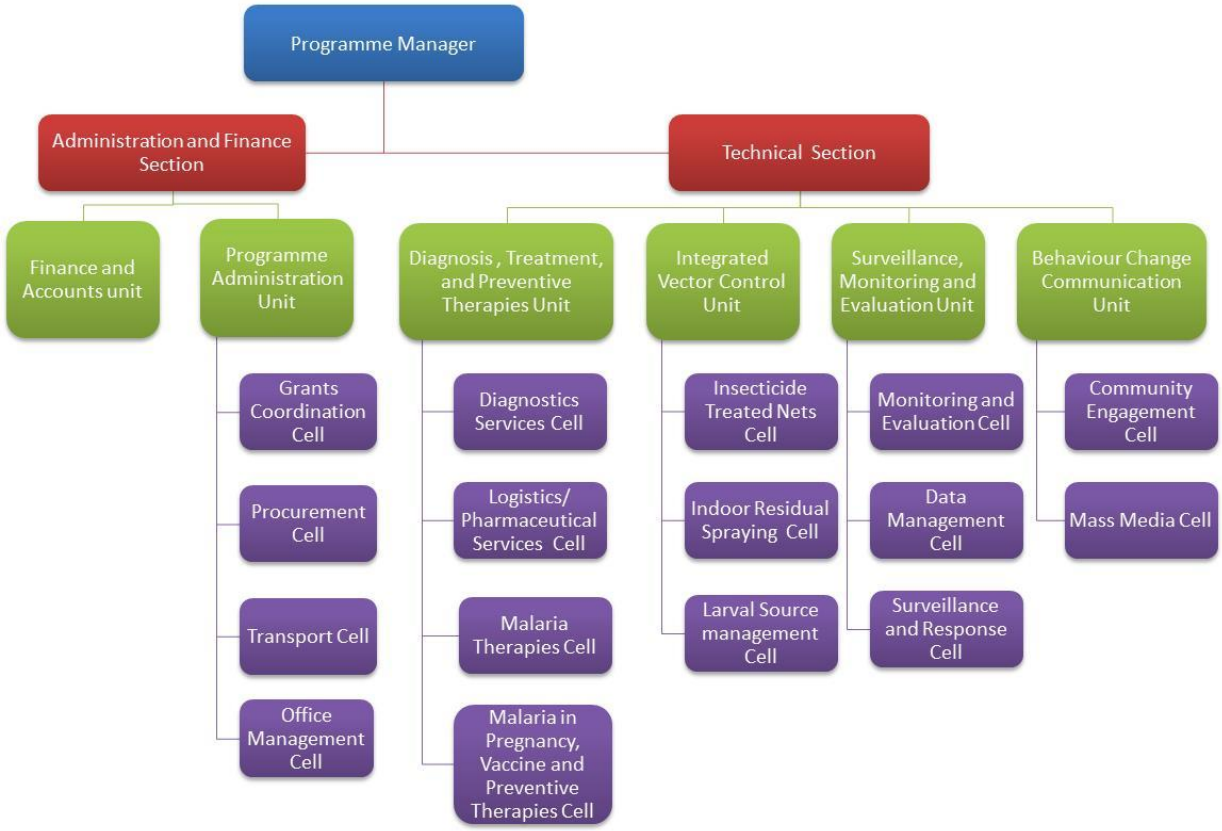
CHAPTER 5: IMPLEMENTATION ARRANGEMENTS

Administration and Management of NMCP

The NMCP falls under the Directorate of Preventive Services in the MoHSW and is organised as shown in *Figure 15*.

NMCP is responsible for designing strategies, developing guidelines, mobilizing resources, facilitating implementation and M&E on progress on malaria control interventions. The regional and local government authorities are responsible for overseeing and implementing the malaria strategies in the communities and districts, together with implementing partners. Regional and district Malaria and IMCI Focal Persons are responsible for coordinating malaria interventions in their respective areas.

Figure 15: NMCP Organogram

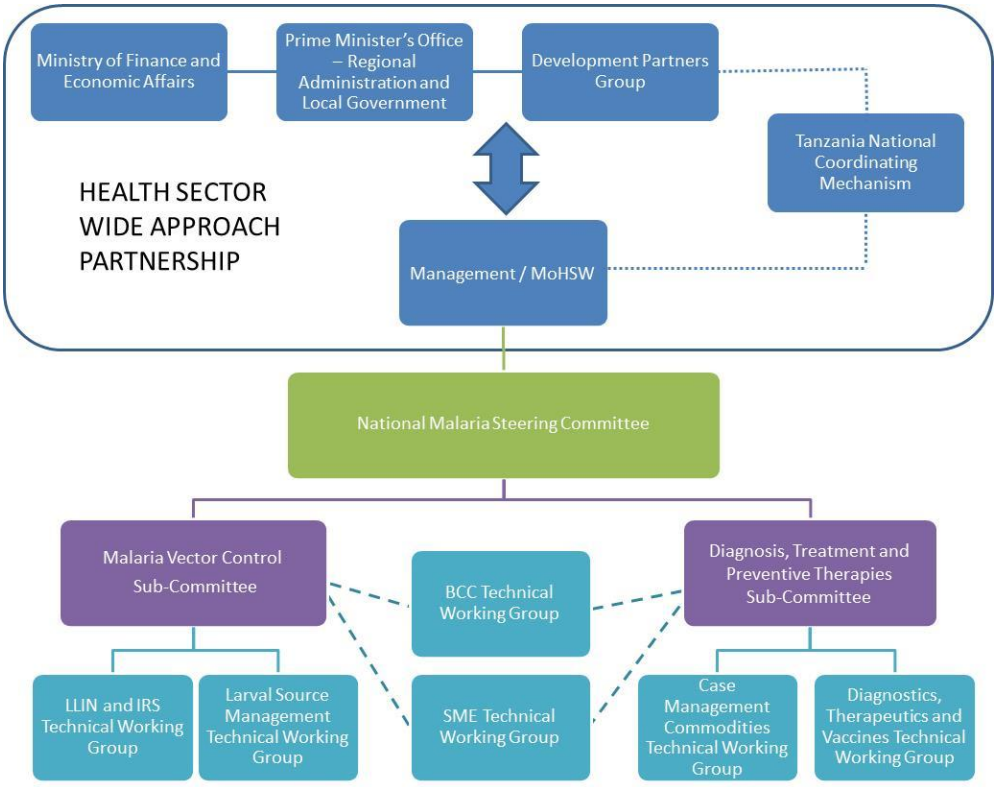


NMCP Governance and Coordinating Mechanisms

NMCP is responsible for overall management of malaria control in the country, but many of the issues are multi-sectoral and involve a range of stakeholders, including other vertical programmes under the Directorate of Preventive Services, other ministries and government statutory bodies, and the development partners. A National

Malaria Steering Committee (NMSC) will be established that is responsible for governance and will be supported by two technical sub-committees with a number of technical working groups, as shown in *Figure 16*

Figure 16: NMCP Governance Structure



The National Malaria Steering Committee

The NMSC is responsible for strategic decisions concerning malaria control, based on recommendations from sub-committees. Issues that involve new implementation initiatives or policy change will be submitted to the MoHSW Senior Management for review and/or endorsement. The MoHSW Senior Management in turn interacts with the MoF, the Prime Minister's Office – Regional and Local Government Authorities as well as coordinating bodies of the development partners.

The purpose of the NMSC is to fast track malaria control activities all aimed at scaling up interventions towards the achievement of RBM targets and MDGs, as per the terms of reference (TOR) outlined below.

- Advise and make recommendations to the MoHSW on all matters related to policies and strategies of national malaria control;
- Receive and discuss reports and approve recommendations from sub-committees on changes to malaria control policies, strategies and interventions;
- Facilitate development of consensus among partners on strategic issues related to implementation of interventions for the prevention and control of malaria;

- Identify critical strategic and programmatic issues arising from implementation of malaria interventions and activities and assign responsibilities to working groups for follow up;
- Identify emerging programmatic and implementation research questions and bring these to the attention of relevant partners;
- Recommend strategies for addressing the capacity gaps for scaling up for impact;
- Advocate for increased attention to and resources targeted to control of malaria; and
- Advocate for strengthening of partnership in addressing malaria interventions.

Composition of National Malaria Steering Committee

The composition of the NMSC should not exceed 20 members of whom the Chief Medical Officer shall be the chairperson. The NMCP Programme Manager will function as the secretary and NMCP heads of units will form a secretariat.

The NMSC members will include senior representatives from MoF, Prime Minister's Office – Regional Administration and Local Government (PMORALG), Development Partner Group (DPG), Tanzania National Coordinating Mechanism TNCM secretariat, World Bank, WHO, President's Malaria Initiative and ZAMEP. The MoHSW members will include the Director of Preventive Services, the Director of Policy and Planning, the Director General of NIMR and the chairpersons of the two technical sub-committees.

The new NMSC will co-opt members in accordance to subject matter, when needed. The NMSC will meet twice per year. Ad-hoc meetings can be convened whenever necessary.

Malaria Sub-Committees and Technical Working Groups

Two malaria technical sub-committees will be formed, namely a Malaria Vector Control Sub-Committee and a Malaria Diagnosis, Treatment And Preventive Therapies Sub-Committee. The permanent membership of the main sub-committees will be determined through a process approved by the NMSC and based on the following criteria:

- Expertise and experience in malaria programmes for at least 5 years;
- Knowledge of malaria and reproductive health issues;
- Balance of scientific and programmatic knowledge and experience; and
- Commitment to participate actively in malaria control interventions.

The sub-committee will meet every quarter, and ad-hoc meetings can be convened whenever necessary. The two sub-committees will be answerable to the NMSC. The respective NMCP Head of Malaria Vector Control and Malaria Diagnosis, Treatment And Preventive Therapies Units will function as the secretariat..

Malaria Vector Control Sub-Committee

A Malaria Vector Control Sub-Committee will be established with the following TOR:

- To advise on implementation plans and progress reports related to Malaria Vector Control
- To review vector control activities in the country and advice the NMSC accordingly.
- To review policies, legislation, regulations and procedures and advise the NMSC on their enforcement and application
- To review various malaria vector control activities carried out by other stakeholders and give on-the-spot advice on the appropriate technical aspect
- To identify potential areas for research and suggest ways and mechanisms towards obtaining appropriate solutions

- To review and advise on the best modalities of publicizing policies, policy guidelines and communication strategies on IEC related to malaria
- To advise on innovative and cost-effective approaches for implementation of IEC on malaria to reach people at all levels.
- To advise on maximum utilization of appropriate communication channels available locally i.e. zonal, regional, district and community
- To advise on the appropriateness of IEC materials that would disseminate correct and effective information in regard to malaria vector prevention and control
- To device best mechanisms to track progress of program interventions
- To develop TOR and members composition for each working group under it

Composition of Sub-Committee

The Malaria Vector Control Sub-Committee has a multi-sectoral composition. Members are selected by the respective institutions based on their expected contribution to the specific vector control matters within their areas of expertise. The sub-committee membership includes the following:

1. Director of Preventive Services (chairperson)
2. Head of Integrated Vector Control Unit (secretariat)
3. Programme Manager, NMCP
4. A representative from research institution
5. A representative from Tropical Pesticides Research Institute (TPRI)
6. A representative from the National Environmental Management Council (NEMC)
7. Chairpersons of technical working groups related to malaria prevention
8. A representative from Vice President's Office-Division of Environment
9. Representative from the Ministry of Agriculture
10. Representative from the Prime Minister's Office for Regional Administration and Local Government
11. Head of Vector Borne Disease Unit of the MoHSW
12. Donor Partner Group representative (Malaria Technical Advisor)
13. USAID-PMI Malaria Technical advisor
14. NMCP Technical Advisor
15. WHO representative

The Head of IVCM Unit will be the secretariat for the sub-committee. Should it be deemed necessary the sub-committee will co-opt members in accordance to subject matter.

Malaria Diagnosis, Treatment and Preventive Therapies Sub-Committee

A Malaria Case Management Sub-Committee will be established covering diagnosis, treatment, preventive therapies and vaccine sub-committee and will have the following TOR:

- Review the status of drug resistance and make recommendations;
- Maintain under review the quality of antimalarial drugs and manufacturing practices and recommend action, as necessary, to deal with substandard products and practices;
- Advise on government policy on antimalarial drugs;
- Review and revise, or develop as necessary, clinical guidelines for case management and laboratory diagnosis for various cadres of health workers and for use in the community;
- Review pre-service and in-service training needs for case management and laboratory diagnosis and recommend changes to curricula or training packages needed to meet these needs.
- Review needs and stocks of supplementary supplies for treatment and diagnosis of malaria.

- Submit resolutions pertaining to malaria diagnosis and treatment to the NMSC for endorsement
- Monitor the implementation of current drug policy, identify problems and recommended solutions to MSC.
- Develop TOR and members composition for each working group under it

Composition of Sub-Committee

The Malaria Diagnosis, Treatment and Preventive Therapies Sub-Committee members are selected by the respective institutions based on their expected contribution to the specific areas of expertise. The sub-committee membership includes the following:

1. Director of Hospital Services (chairperson)
2. Head of the Malaria Diagnosis, Treatment and Preventive Therapies Unit (secretariat)
3. Programme Manager, NMCP
4. Paediatrician from a referral or teaching hospital
5. Obstetrician/Gynaecologist from a referral or teaching hospital
6. Representative of Therapeutical Efficacy Testing Network
7. Representative from Pharmaceutical Supply Section (PSS) of the MoHSW
8. Representative from Medical Stores Department
9. Representative from Tanzania Food & Drugs Authority (TFDA)
10. Laboratory Technologist from reference laboratory, MoHSW
11. Assistant Director, Diagnostic Services, MoHSW or representative
12. Chief Nursing Officer's Office (CNO Office)
13. Representative from Association for Private Hospitals
14. Assistant Director, Reproductive & Child Health Services (IMCI, MIP, PMCTC, EPI)
15. WHO representative
16. Donor Partner Group representative (Malaria Technical Advisor)
17. PMI Malaria Technical advisor
18. NMCP Technical Advisor

Technical Working Groups

A total of six working groups will be formed

1. LLIN and IRS
2. Larval Source Management
3. Case Management Commodities
4. Diagnostics, Therapeutics and Vaccines
5. Behaviour Change and Communication
6. Surveillance, Monitoring, and Evaluation

The first and second working groups report to the Malaria Vector Control Sub-Committee. The third and fourth report to the Malaria Case Management Sub-Committee and the last two groups are cross-cutting.

All technical implementation/programmatic issues related to malaria case management will be discussed at respective technical working groups and their resolutions be submitted to the respective sub-committee. The working groups will meet monthly. The head of NMCP units will be the secretariat of the technical working groups.

Thematic programmatic areas that require competent and dedicated technical contributions should be addressed by specific task forces. A few examples from the recent experiences include task forces to a) address the selection of first line antimalarials, b) deliberate therapies for curing and preventing malaria in pregnancy and c) improve the access to malaria treatment in the private sector. The composition of the task forces and their term of reference are designated by the respective technical working groups. Task forces are reporting to the technical working groups.

Quarterly, Biannual and Annual Progress Review Meetings

Quarterly reports are submitted by districts, regions and all implementing partners. NMCP also prepares quarterly reports for submission to the Department of Preventive Services. Biannual reports, in the form of Progress Updates and Disbursement Requests (PUDR), are prepared and submitted to the Ministry of Finance (Global Fund Programme Management Unit) through the MoHSW, PMU. Annual reports are prepared by all districts, regions and implementing partners and are submitted to the NMCP.

Implementation Mechanisms

Implementation of the strategic plan will be a joint effort of all partners and stakeholders at national, regional, district and community levels. Implementation will occur through (1) the public health system, including parastatal or multi-sectoral public health services (e.g., health services within the Ministry of Education, local government authorities, etc.); (2) CSOs (NGOs, CBOs and FBOs); and (3) through and with the private sector. The MoHSW is the overall responsible entity for the implementation of malaria control interventions by different organizations under the strategic plan framework.

Regional and Council Authorities

Tanzania's public health system operates at the national (strategy and policy making), regional (technical advice and capacity building) and district (coordination and supervision of implementation) levels. Delivery of health services is shared among the MoHSW and PMO-RALG. Consultant hospitals, zonal health training centres and special programs fall directly under the MoHSW. PMO-RALG manages district and regional health services, including the regional and district councils.

In line with the decentralization introduced in the 1990s, the MoHSW has delegated decision-making power on primary healthcare to the district and regional level. The primary healthcare system is organized as a pyramidal system with different levels, including village health services, dispensary services, health centre services, district hospitals, regional hospitals, and referral/consultant hospitals. RHMTs and CHMTs, comprising of a total of nine core and another eight co-opted members, are responsible for developing annual health plans and budgets. The CCHPs are developed in line with MoHSW guidelines; however, the plans often do not provide detailed strategies or sufficient resources for effective malaria control interventions.

The day-to-day implementation of the regional and district malaria interventions are coordinated by the Regional and District Malaria and IMCI focal persons, who are members of the RHMTs and CHMTs, respectively. NMCP maintains a technical link to the districts and regions through the RMIFPs and the DMIFPs to align to the implementation process. The regions and districts employ other health professionals who have been trained by NMCP and partners on specific subjects (e.g., SME, malaria diagnosis and treatment, malaria in pregnancy, IRS, LLIN delivery, etc.).

Roles of the Regional Malaria IMCI Focal Persons

The RMIFP is a health professional selected by the RHMT and successively trained by the NMCP. The roles of the RMIFP are as follows:

1. Coordinate malaria interventions in the region;
2. Liaise with NGOs and other partners on malaria control activities or interventions in the region; Consolidate district/council quarterly malaria implementation reports into a single regional quarterly malaria implementation report and reporting to NMCP in a timely manner;
3. Advise the RHMT on better implementation tactics of malaria control activities or interventions in the region;

4. Function as the liaison between the NMCP and RHMT on malaria control issues, especially on the availability and distribution of malaria policy guidelines; and
5. Carry out any other standing or periodic assignment prescribed by RMO/RHMT.

Roles of the District Malaria IMCI Focal Persons

The DMIFP is a health professional selected by the CHMT. The majority have been trained by the NMCP for a period of four weeks. The roles of the DMIFP are as follows:

1. Coordinate the malaria control interventions in the district and council;
2. Liaise and ensure adherence to national malaria policy guidelines by all NGOs and other partners in malaria control activities and interventions in the district;
3. Prepare and submit an annual technical implementation report to RMIFP and NMCP;
4. Advise the CHMT on better implementation tactics of malaria control activities and interventions;
5. Carry out any other standing or periodic assignment prescribed by DMO or CHMT.

District Primary Healthcare Committee

The District Primary Healthcare Committee, chaired by the District Commissioner, is the health advisory board at district level. The committee membership includes all key actors at district level, development partners, and representatives of the private sector, NGOs and voluntary agencies. The PHC committee will include malaria control issues as a permanent activity on its agenda.

Council Health Management Team

The CHMT, chaired by the DMO, is the technical body at district level and is responsible for implementation of the malaria strategy, including advocacy and resource mobilisation for malaria control. The CHMT is responsible for supporting health facilities and communities in the implementation of malaria control activities, as well as supervision and M&E of the district's Health Plan.

Community-Level Committees

Village councils, primary healthcare committees and ward development committees are responsible for implementation of community based malaria control activities. They coordinate, with the technical assistance of the local health staff, activities of the different actors involved in the delivery of interventions at household level: implementers of development projects, community resource persons, traditional birth attendants, opinion leaders, leaders of FBOs, extension workers, teachers and private providers of drugs and other health commodities.

APPENDIX 1. PERFORMANCE FRAMEWORK

Programme Goal

Items	Indicators	Baseline and Target Values			Sources	Frequency
		Y0	Y3	Y7		
Goal	**Target**					
Reduce the average country malaria prevalence	Parasitaemia Prevalence in Children 6-59 months	10%	5%	1%	THMIS/ TDHS	3 years

Integrated Malaria Vector Management

Items	Indicators	Baseline and Target Values			Sources	Frequency
		Y0	Y3	Y6		
Strategic Objectives						
6. To reduce transmission of malaria by scaling-up and maintaining effective and efficient vector control interventions	Reduce entomological inoculation rate (EIR) to <0.1	NA	<0.25	<0.1	Entomological reports	Annual
Specific Objectives	**Outcome indicators**					
1.1 Ensure universal access of the population to LLINs in all transmission settings and control stages	Percent of the household population with access to an LLIN within their household (assuming one LLIN covers two persons)	75%	80%	85%	THMIS/ TDHS	3 years
1.2 Consolidate and expand IRS in epidemiologically and operationally suitable areas	Percent of house structures in the country sprayed with recommended insecticide(s) during the past 12 months	12%	15%	20%	THMIS/ TDHS	3 years
1.3 Implement larviciding interventions in selected urban areas where breeding sites are few, fixed, and findable	Percent decrease in larval density in selected areas treated with appropriate larvicides, measured on quarterly intervals	NA	50%	75%	Ento. Survey	Annual
1.4 Promote effective environmental management for malaria control amongst targeted communities	Proportion of urban wards implementing environmental management to prevent mosquito breeding sites	NA	25%	50%	NMCP&P report	Annual
1.5 Provide a strategic framework for coordination and continuous assessment for the implementation of evidence-based IMVC interventions	Number of evidence-based innovations for malaria vector control adopted and integrated introduced in Tanzania	NA	1	2	NMCP&P report	Annual
Strategic Interventions/approaches	**Output indicators**					
6.1.1 Implement a mass replacement campaign to bring LLIN coverage to at least 80% of all households	Percentage of households with enough LLINs to cover household population (assuming one LLIN covers two persons)	56%	80%	80%	THMIS/ TDHS	3 years
6.1.2 Implement continuous distribution mechanisms to keep up coverage at 80% or above	Number of LLINs distributed through the different distribution channels (SNP, TNVS and commercial market) annually	NA	7 million	8 million	NATNET report	Annual
6.1.3 Implement targeted distribution to vulnerable groups: Infants and pregnant women	Percentage of children sleeping under LLINs	71%	80%	85%	THMIS/ TDHS	3 years
	Percentage of pregnant women sleeping under LLINs	73%	75%	85%		
6.1.4 Create an enabling environment to revive the commercial market for ITNs and LLINs	Number of ITNs/LLINs sold commercially	NA	2 million	3 million	THMIS/ TDHS	3 years
1.2.1 Build capacity of local government authority and private sector to plan, manage, implement, and evaluate IRS	Number of councils capacitated to deliver quality IRS services	18	43	43	NMCP&P report	Annual
1.2.2 Application of quality IRS in selected areas	Percentage of house structures sprayed in the IRS targeted areas out of	85%	90%	95%	NMCP&P	Annual

Items		Indicators	Baseline and Target Values			Sources	Frequency
			Y0	Y3	Y6		
		the total eligible				report	
1.3.1	Application of larvicides where mosquitoes breeding sites are few, fixed, and findable	Proportion of city and municipal councils implementing larviciding	3/23	11/23	23/23	NMCP&P report	Annual
1.3.2	Promote larviciding application by the private sector in suitable environment and civil works sites	Number of advocacy and coordination initiatives targeting the private sector companies/institutions on proper use of larviciding	NA	6	12	NMCP&P reports	Annual
1.3.3	Establish a system for monitoring larva density in areas where larviciding is applied	Proportion of city and municipal implementing councils with on-going larva monitoring	NA	80%	80%	NMCP&P reports	Annual
1.4.1	Promote community-led environmental initiatives in selected urban wards	Proportion of urban wards capacitated to deliver effective environmental measures	NA	25%	50%	NMCP&P reports	Annual
1.4.2	Promote environmental measures in all infrastructure development projects	Number of advocacy and coordination initiatives targeting the infrastructure development projects on adoption of appropriate environmental measures	NA	6	12	NMCP&P reports	Annual
1.5.1	Provide a forum and strategic framework for IMVC initiatives to ensure coordinated and harmonized implementation of the interventions among partners	IMVC interventions evaluation reports available (cumulative)	1	2	4	TWG minutes	Quarterly
1.5.2	Encourage partners to research and develop new and appropriate vector control tools to create an evidence-base for scale up	Number of new IVC tools piloted (cumulative)	NA	1	2	OR reports	Annual
1.5.3	Implementation of insecticide resistance management plan	Proportion of Insecticide resistance management plan initiatives performed	NA	50%	80%	Technical report	Annually
1.5.4	Work with national regulatory authorities to improve the monitoring and quality assurance of IMVC equipment and commodities	Proportion of commodities used in IMVC interventions registered by national regulatory authority	80%	100%	100%	TPRI registration	Annually

Malaria Diagnosis, Treatment and Preventive Therapies

Item		Indicators	Baseline and Target Values			Data Sources	Frequency
			Y0	Y3	Y7		
Strategic Objectives		**Target**					
7.	To prevent the occurrence of severe morbidity and mortality related to malaria infection through promotion of universal access to appropriate early diagnosis and prompt treatment and provision of preventive therapies in vulnerable groups	Case Fatality Rate in patients admitted due to severe malaria (%)	3%	2%	<1%	HMIS DHIS2	Annual
Specific Objectives		**Outcome indicator**					
2.6	Provide universal access to appropriate, quality and timely malaria diagnosis to all people with signs and symptoms of malaria	% of U5 children with fever who had a malaria test the same or next day after onset of a disease	25%	60%	80%	THMIS/ TDHS	3 years
2.7	Provide universal access to appropriate, quality and timely treatment to all people who have malaria	% children under age 5 with fever and tested positive for malaria parasites who were treated with recommended antimalarial the same or next day following the onset of fever	33%	60%	80%	THMIS/ TDHS	3 years
2.8	Provide appropriate and effective services to reduce the risk of malaria infection and its complications among populations biologically and socioeconomically vulnerable to malaria	% of women with live birth in the previous two years who received two doses or more of SP (IPTp2+)	32%	60%	80%	THMIS/ TDHS	3 years

Item	Indicators	Baseline and Target Values			Data Sources	Frequency
		Y0	Y3	Y7		
2.9 Ensure that commodities used in malaria patient care and prevention are consistently safe, quality assured and available at the points of care	Proportion of public healthcare facilities with no stock outs of both antimalarials and mRDTs	NA	90%	90%	SMS for Life	Weekly
2.10 Deploy appropriate malaria case management interventions in case of outbreaks and resurgence situations to reduce the risk of severe morbidity and mortality	Proportion of emergency situation in which specific malaria case management interventions have been implemented	NA	80%	90%	NMCP	Annual
Interventions	**Output indicators**					
7.1.1 Provide high-standard, accessible, affordable, equitable, and quality-assured testing for patients seeking treatment in the public sector	Proportion of suspect malaria cases tested in the public healthcare delivery sector	58%	80%	90%	DHIS2	biannual
7.1.2 Facilitate the provision of high-standard, accessible, affordable, and quality-assured testing to patients seeking treatment in the private sector	% of private facilities that have QA mRDT service available	NA	50%	80%	HF Survey	Biannual
7.1.3 Provide quality-assured testing services from skilled providers	% of malaria test performers in public & private sector who attend a training	59%	80%	80%	HF Survey	Biannual
7.1.4 Ensure quality testing services through quality assurance of the diagnostic sites and tests used	% of laboratory facilities that have staff accredited for quality malaria testing	NA	90%	90%	HF Survey	Biannual
7.1.5 Introduce evidence-based, innovative diagnostic tools for malaria detection and differential diagnosis of other pathogens causing febrile illnesses	Number of evidence based innovative diagnostic tools introduced	0	2	4	HF Survey	Biannual
2.2.1 Provide highly efficacious, accessible, affordable, equitable, and quality-assured antimalarials to patients seeking treatment in the public sector	Proportion of malaria confirmed patients receiving QAACT in public health facilities	NA	80%	95%	DHIS2	Semi-annual
2.2.2 Facilitate the provision of accessible, affordable, and quality-assured antimalarials to patients seeking treatment in the private sector	Proportion of private facilities have the recommended quality assured antimalarials available	66%	80%	95%	HF Survey	Semi-annual
2.2.3 Provide high-quality case management of fever services from skilled providers	Proportion of public and private HF with at least one provider trained in fever case management	59%	80%	80%	HF Survey	Biannual
2.2.4 Provide equitable access to malaria diagnosis and treatment by creating an integrated community case management system for communities that are underserved by other health outlets	Proportion of of targeted villages where an ICCM system is established	NA	25%	50%	NMCP&P report	Annually
2.3.1 Increase the uptake of IPTp2+ to reduce vulnerability in pregnancy	% of pregnant women who receive IPTp2+	NA	60%	80%	THMIS/ TDHS	3 years
2.3.2 Reduce vulnerability among other vulnerable groups: people with sickle cell, people with HIV, non-immune travellers, and infants	% of HIV eligible cases receiving CPT	NA	50%	75%	THMIS/ TDHS	3 years
2.3.3 In the event of the introduction of a malaria vaccine, the country is able to rapidly scale up its use	Proportion of targeted children vaccinated	NA	NA	80%	EPI/IVD, DHIS2	Annual
2.4.1 Facilitate malaria commodities procurement process as indicated by the comprehensive annual quantification through the provision of timely ordering and clear delivery schedule to the selected procurement agency	Percentage of public facilities that have no QAACT stock-out continuous for one week in the last 3 months	74%	80%	95%	LMU Report	Monthly

Item	Indicators	Baseline and Target Values			Data Sources	Frequency
		Y0	Y3	Y7		
2.4.2 Improve logistic information system to facilitate the commodities supply chain from MSD to healthcare facilities and to respond to stock-outs	Proportion of health facilities reporting weekly stock status	75%	80%	80%	mHealth DHIS2	Weekly
2.4.3 Eliminate counterfeit, suboptimal, substandard products through monitoring and regulation reinforcement	% of products assessed which are found to be counterfeit/ suboptimal/ substandard	0	0	0	TFDA reports	Annual
2.4.4 Facilitate the relevant regulatory authorities to regularly conduct pharmacovigilance for antimalarial medicines	Number of semi-annual pharmacovigilance reports received from TFDA	NA	2	2	TFDA reports	Annual
2.10.1 Select and provide appropriate community level mass fever screening, test and treatment initiatives as response to emergency situation	Proportion of mass fever screening and testing initiatives undertaken as response to emergency situation	NA	50%	75%	NMCP&P report	Semi-annual
2.10.2 Implement malaria patients follow up and active case detection in identified transmission foci in low endemic areas	Proportion of targeted people actively screened and treated	NA	50%	75%	NMCP&P report	Semi-annual

Malaria Communication

Item	Indicators	Baseline and Target Values			Sources	Frequency
		Y0	Y3	Y7		
Strategic objective:	**Outcome indicators**					
8. To create an enabling environment where individuals and household members are empowered to minimize their own malaria risk and seek proper and timely malaria-treatment if and when needed	Proportion of caretakers who are able to take actions to protect their children from malaria	82%	85%	90%	THMIS/ TDHS	3 years
Specific Objectives						
3.6 Reinforce and update knowledge amongst all community members in Tanzania about appropriate malaria prevention, testing and treatment and promote desired positive behaviours	Proportion of population (disaggregated by age and sex) with knowledge of ways to avoid and treat malaria	92%	92%	95%	THMIS/ TDHS	3 years
3.7 Increase knowledge amongst vulnerable groups with elevated risk of malaria infection about their specific risk and the prevention and treatment options available to them	Proportion of women 15-49 years who know pregnant women are at higher risk of getting malaria	90%	90%	90%	THMIS/ TDHS	3 years
3.8 Influence social norms about healthy behaviours around malaria prevention and care, and encourage communities to initiate and implement community-based malaria control interventions	% of women who state that malaria is the most serious health risk in the community	67%	70%	75%	THMIS/ TDHS	3 years
3.9 Create strong BCC public private partnership to maximize efforts, ensure consistency in approach, and avoid duplication	Percentage of women who have seen or heard a malaria message in the past year	84%	87%	90%	NMCP&P report	Annual
3.10 Raise the profile of malaria amongst policy and decision makers at all levels so that national, regional and district plans include appropriate interventions and sufficient budget to implement the malaria strategy	% of CCHPs that include malaria interventions and budgets	14%	50%	80%	NMCP&P report	Annual
Strategic Interventions	**Output indicators**					
8.1.1 Improve capacity of healthcare workers to effectively provide accurate and relevant information to patients on desired behaviours for malaria prevention and treatment	Proportion of health facilities with health staff trained on providing relevant malaria BBC information to patients	NA	40%	80%	HF Surveys	Annual
8.1.2 Improve capacity of ward- and village-level health staff and extension workers to effectively provide accurate and relevant	Proportion of wards with health worker(s) or volunteers capacitated with adequate messages on malaria control	30%	40%	50%	HF Surveys	Annual

Item		Indicators	Baseline and Target Values			Sources	Frequency
			Y0	Y3	Y7		
	malaria information in their interaction with community members						
3.2.1	Improve capacity of healthcare workers to provide accurate and relevant information on specific malaria risks and appropriate action to biologically vulnerable groups during health visits	Percentage of health workers/ health assistants who have received specific BCC training on malaria risk for vulnerable groups	NA	50%	75%	HF Surveys	Annual
3.2.2	Develop and implement outreach programme for socioeconomically vulnerable groups and hard-to-reach mobile populations in high-transmission areas	Proportion of wards in which outreach interventions for target populations have been implemented in high-transmission areas	NA	40%	80%	NMCP&P reports	Annual
3.3.1	Engage local leadership as malaria ambassadors	Proportion of districts with 'malaria ambassadors'	NA	50%	75%	NMCP&P reports	Annual
3.3.2	Develop and implement mass campaign with influential people to spark action	Proportion of people reached with appropriate malaria messages through mass media	80%	90%	90%	THMIS TDHS	3 years
3.4.1	Provide a forum and strategic framework for BCC partners to ensure coordinated and harmonized implementation of the BCC strategy	Technical working groups meeting conducted	90%	90%	100%	TWG Minutes	Quarterly
3.4.2	Create a platform for private sector companies to provide malaria control services to their workforce and the communities in which they work	Number of companies participating in the Malaria Safe Companies Initiatives	52	150	250	NMCP&P reports	Annual
3.4.3	Create a common framework to evaluate BCC interventions	Percentage of quarterly verification visits undertaken	25%	50%	90%	NMCP&P reports	Semi-annual
3.10.1	Engage politicians, and policy and decision-makers in political debate on malaria control	Number of national meetings with policy- and decision makers conducted	1	4	8	NMCP&P reports	Annual

Malaria SME

Item		Indicators	Baseline and Target Values			Data Sources	Frequency
			Y0	Y3	Y7		
Strategic Objective		**Outcome Indicators**					
9.	To provide timely and reliable information to assess progress towards the set global and national targets, to ensure resources are used in the most cost-effective manner and to account for investments made in malaria control	Number of national representative population based and service provision surveys that include key malaria indicators that are completed	1	1	1	TDHS/ THMIS/ TSPA	Periodic surveys
Specific Objectives		**Outcome Indicators**					
4.5	Improve quality, completeness, and timeliness of malaria indicators within the routine health information system	Proportion of health facilities reporting monthly through the HMIS	60%	80%	90%	DHIS2	Monthly/ weekly
4.6	Establish a comprehensive framework for collecting, processing and storing essential malaria indicators from periodic service delivery and programmatic surveys	Proportion of the planned malaria key indicators surveys, for monitoring malaria interventions coverage, quality of service provision, vector and parasite dynamics and, quality assured malaria commodities availability, executed.	NA	80%	80%	NMCP&P report	Annual
4.7	Establish and maintain a comprehensive and effective malaria knowledge management system to collate, interpret, disseminate, and promote the use of quality malaria data for evidence-based decision making at national and district level	Proportion of evaluation reports developed according to the national SME plan	NA	80%	90%	NMCP&P reports	Annual

Item	Indicators	Baseline and Target Values			Data Sources	Frequency
		Y0	Y3	Y7		
4.8 Design and support the implementation of a comprehensive malaria surveillance and response system for epidemic-prone districts	Proportion of malaria epidemics responded to by district councils within two weeks from the onset	NA	50%	80%	NMCP&P reports	Annual
Strategic Approaches and interventions	**Output indicators**					
9.1.1 Support HMIS/DHIS units in the MoHSW to improve quality of reporting malaria indicators and roll out of the electronic DHIS platform at all levels	Number of health facilities reporting complete monthly malaria indicators	20%	80%	80%	DHIS2	Annual
9.1.2 Develop quality assurance/control system for data auditing and verification	Proportion of health facilities reporting quality assured malaria data	NA	60%	80%	HF Survey	Annual
4.2.1 Establish selected sentinel districts/sites to capture non-routine malaria data on quality of care	Proportion of sentinel districts/sites avail reports on non-routine malaria data, including ACTs dispensed from health facilities and other outlets	NA	40%	80%	HF Survey	Annual
4.2.2 Collaborate with the National Bureau of Statistics to ensure the regular national representative population surveys and other specific sub-national surveys include relevant malaria indicators	Proportion of report of national representative surveys availed, according to M&E plan	100 %	100%	100%	TDHS, THMIS, TSPA	Each survey 5 years
4.2.3 Establish countrywide longitudinal vigilance of malaria parasitaemia in sentinel population: pregnant women and infants at RCH clinics, school-age children	Proportion of selected health facilities conducting assessment of malaria parasitaemia in pregnant women and U5 children	25%	50%	80%	Activity report	Biannually
4.2.4 Establish and expand longitudinal monitoring of mosquito population dynamics and behaviour in sentinel sites and strengthen surveillance of insecticide susceptibility	Number of insecticide resistance reports from sentinel sites (cumulative)	3	6	9	NMCP&P Reports	Annual
4.2.5 Coordinate and oversee the implementation of standard antimalarial efficacy tests as per WHO guidelines by national research institutions	Number of antimalarial therapeutic efficacy reports per site (cumulative)	8	16	28	NMCP&P Reports	Annual
4.2.6 Coordinate the collection, use, and interpretation of the programmatic monitoring of vector control initiatives (including LLINs, IRS, and LSM)	Proportion of vector control initiatives with appropriate monitoring system in place according to standard national set of indicators	NA	100%	100%	NMCP&P Reports	Annual
4.2.7 Regularly update malaria epidemiological profile	Frequency of updating malaria epidemiological profile	NA	1	3	Profile	Biennial
4.3.1 Establish a national SME Partnership Framework	Proportion of initiatives conducted according to the national SM&E plan	NA	80%	80%	NMCP&P Reports	Annual
4.3.2 Develop a national malaria data management plan and data repository to enable evidence-based decision making at all levels	Established and regularly updated composite NMCP database	NA	1	1	NMCP&P Reports	Quarterly/ Biannually
4.3.3 Undertake periodic malaria program reviews and evaluation of the implementation of malaria strategic plan	MPR and midterm reports available (cumulative)	NA	1	2	MPR Report	Mid-term
4.8.1 Map the malaria epidemic-prone districts, including stratification of epidemic “hot spots”	Presence of maps with detailed information on malaria epidemic hotspot	NA	50%	80%	NMCP&P Reports	Annual
4.8.2 Establish Malaria Epidemic Early Warning System and a Malaria Epidemic Early Detection System	Proportion of epidemics alert investigated within 2 weeks after detection	NA	50%	80%	NMCP&P Reports	Annual
4.8.3 Strengthen Capacity for malaria epidemics containment at district and health facility level in epidemic prone districts	Proportion of epidemic prone districts trained on epidemic preparedness	NA	50%	80%	NMCP&P Reports	Annual
4.8.4 Implement malaria outbreaks response operations when and where necessary	Proportion of epidemic properly responded within 2 weeks from detection	NA	50%	80%	NMCP&P Reports	Annual

Malaria Programme Management, Partnership Development and Resource Mobilization

Items	Indicators	Baseline and Target Values			Sources	Frequency
		Y0	Y3	Y7		
Strategic objective:	**Target**					
10. Efficient programmatic and financial management of malaria control interventions at all levels, implemented through effective and accountable partnerships with adequate funding	Programme performance as rated overtime through semi-annual independent evaluation (Global Fund)	B+	A+	A+	PUDR	Semi-annually
Specific Objectives	**Outcome indicators**					
10.1 Improve the effectiveness and accountability of malaria control implementation by strengthening partnerships and cooperation with malaria control stakeholders at all levels	Proportion of interventions within the annual implementation plan that have been successfully implemented	NA	75%	90%	NMCP&P Reports	Annual
10.2 Increase the level of resource mobilization to fund the strategic plan, according to the programmatic needs	Proportion of total strategic plan budget funded	N/A	80%	90%	NMCP&P Reports	Annual
10.3 Promote a harmonized regional and inter-sectoral approach to malaria control	Number of inter-sectoral and cross-border malaria initiatives developed (cumulative)	NA	2	4	NMCP&P Reports	Annual
Strategic approaches and interventions	**Output indicators**					
5.1.1. Improve coordination and governance structures at national, regional, and district levels	Proportion of planned meetings of the steering committee, and sub-committees held	0	80%	80%	NMCP&P Reports	Biannually, Quarterly
5.1.2. Develop and disseminate strategies and updated implementation guidelines	Number of regional and local government authorities oriented on malaria control strategies and updated guidelines	NA	80%	80%	NMCP&P Reports	Not applicable
5.1.3. Strengthen human resources capacity for effective programme management at national level	Proportion of NMCP vacancies filled by government employed staff	NA	50%	80%	NMCP&P Reports	Annual
5.1.4. Enhance supervision and verification systems involving implementing entities at various levels	Proportion of districts supervised by national and regional teams in a year	NA	80%	100%	NMCP&P Reports	Annual
5.1.5. Build capacity of municipal and district councils in malaria planning and budgeting	Proportion of CCHP including malaria control initiatives in line with strategic plan	NA	80%	100%	NMCP&P Reports	Annual
5.2.1 Develop and implement a Comprehensive Malaria Resource Mobilisation Plan to support the process of domestic and global resources mobilization	Number of comprehensive proposals developed and funded (cumulative)	0	4	8	NMCP&P Reports	Annual
5.2.2 Develop and update comprehensive business and operational plans for malaria control	Number of annual updated business/operational plan in place (cumulative)	NA	3	6	NMCP&P Reports	Not applicable
5.2.3 Improve NMCP capacity to develop successful funding of proposals and manage the implementation of the programmes	Proportion of NMCP technical staff trained in proposal development	NA	25%	50%	NMCP&P Reports	Not applicable
10.3.1 Develop a strategic framework for regional collaboration on malaria control	Number of regional initiatives promoted by the NMCP (cumulative)	0	2	4	NMCP&P Reports	Annual
10.3.2 Develop action plans with relevant ministries outlining inter-sectoral malaria control intervention and targets	Number of inter-sectoral Action Plans developed	0	1	3	NMCP&P Reports	Event

Key: NMCP&P: National Malaria Control and Partners; PUDR:progress update and disbursement request; HF: Health Facility; DHIS2: District Health Information Software; THMIS: Tanzania HIV and Malaria Indicator Survey; TDHS: Tanzania Demographic and Health Survey ; TSPA: TanzaniaService Provision Assessment;