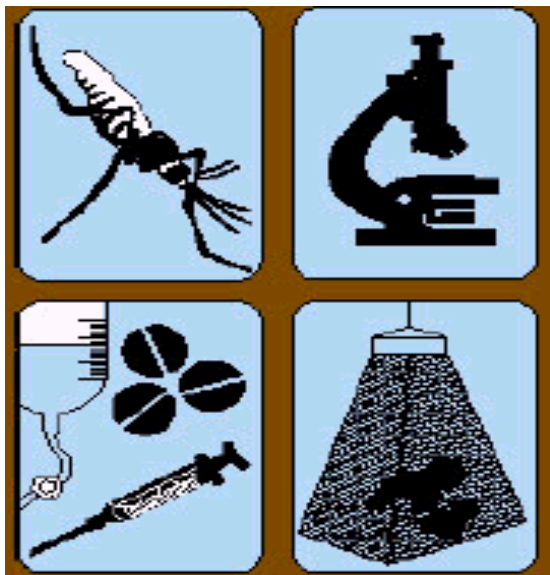




**NATIONAL MALARIA MEDIUM TERM STRATEGIC PLAN
2002-2007**



March 2003

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FOREWORD

I am pleased that so much has been achieved over the last few years that will make a difference to the burden of disease inflicted by malaria in Tanzania. We have in place a rational anti-malarial drug policy, based on SP as the first line treatment that is affordable and effective. Quality assured SP drugs are available throughout the country at Government health facilities supported by an exciting range of posters, magazines and treatment guidelines. We are seeing a rapid increase in the number of people who appreciate the benefits of using insecticide treated mosquito nets (ITNs) and significant increases in the number of people who report that their children are now regularly protected by ITNs at night.

These are important achievements that reflect a renewed interest in the fight against malaria and our Government's commitment to the Abuja 2000 Declaration on Roll Back Malaria in Africa. Yet, despite all the efforts to date, malaria is still the major cause of morbidity and mortality, inflicting a huge socio-economic burden on the people of Tanzania. The number of clinical malaria cases per year is estimated to be between 14 and 18 million with a mortality rate that ranges from 140 to 650 per 100,000 people, depending on geographical location. Those most at risk are the ones who should be nurtured and protected most, our small children and pregnant women.

Therefore The Ministry of Health is determined to increase the efforts being made to combat malaria. We have worked hard to secure increased funding for activities that will build on our achievements thus far and ensure that we can realise the vision of this Malaria Medium Term Strategic Plan (MMTSP).

Our aim is to reduce mortality and morbidity due to malaria in all 20 regions of the country by 25% by 2007 and by 50% by 2010.

This is a tough challenge and any success will require the commitment and co-operation of everyone in the country because control of malaria is not just the responsibility of the Ministry of Health. Malaria is the responsibility of every member of our society; from the politicians who decide how much money the government should spend on supporting the health sector and providing the best anti-malarial treatments available, to the householder who has to make choices about spending money on an ITN or another bottle of beer. Also the child at school who has to learn how to treat and use an ITN and how to recognise and treat malaria and then pass that knowledge back to his or her family and friends.

Implementation will be in line with current Health Sector and Local Government reforms. The focus will be on prevention and the effective treatment of malaria.

- Householders will be empowered to recognise early symptoms and signs of malaria so that they are able to treat themselves and their children promptly.
- Provision of high quality malaria treatment drugs at community level will be strengthened through increased investment and the involvement of the private sector.

- Improved access to Insecticide Treated Mosquito Nets, especially for pregnant women and infants will be supported with massive promotion and funds to increase affordability.
- The MoH will strengthen the National Malaria Control Programme (NMCP) to enable effective coordination and management of the Malaria Medium Term Strategic Plan.

The delivery targets are:

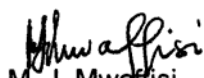
- To increase the proportion of children with febrile episodes, that receive appropriate treatment within 24 hours of onset from 19% to 60% by the year 2007
- In children attending health facilities, to increase to 80% the proportion of clinical malaria cases, that are treated appropriately
- To increase to 60% the proportion of pregnant women and children that are sleeping under a properly treated mosquito net
- To increase to 60% the proportion of pregnant women who are effectively protected against malaria with Intermittent Preventive Therapy (IPT)
- To improve the capacity of epidemic-prone districts to recognise malaria epidemics early and respond appropriately.
- To ensure that Tanzanians understand the dangers of malaria and what they, as responsible citizens, can do about it.

Realisation of these targets demands concerted effort at all levels of administration involving the public and private sectors, non-governmental organisations, political organisations, faith based groups, community leaders, families and individuals.

I have every hope that all those who have an interest in the health of the nation will find this strategic plan a challenging but feasible initiative. We welcome those who may wish to support the Ministry of Health to come forward and join us in rolling back malaria. Let us ensure a united effort to implement these interventions designed to control malaria in Tanzania.

It is our belief that when we join hands in the fight against this formidable foe we will be able to move fast and improve the health and prosperity of our people.

Thank you,



M. J. Mwaafisi
 Permanent Secretary
 Ministry of Health
 United Republic of Tanzania

Acknowledgements

The National Malaria Medium Term Strategic Plan has been produced through the efforts of many stakeholders. These include bilateral and multilateral partners, sectoral ministries, NGOs, the private sector, institutions and individuals. The Ministry of Health extends sincere appreciation and gratitude to them all.

The Ministry of Health is also indebted to all those who worked hard to ensure that the inputs for the Malaria Medium Term Strategic Plan are well synthesized and synchronized with the ongoing Health Sector Reforms.

Executive Summary

Thirty percent (30%) of the disease burden borne by the people of Tanzania is from acute febrile illness, predominantly caused by malaria. The groups most vulnerable to malaria are young children and pregnant women.

Renewed concern about the impact of malaria in Tanzania encouraged the adoption in the mid 1990s of Tanzania as one of the target countries for the WHO Accelerated Plan of Action for Malaria Control. In 1997 a four-year Plan of Action was agreed followed by the 2000-2001 Roll Back Malaria Plan of Action.

This Malaria Medium Term Strategic Plan (MMTSP) will build on the previous successes to further reduce malaria mortality and morbidity in all 20 regions by 25% by 2007 and by 50% by 2010.

Four strategic approaches will be applied to reduce the burden of malaria disease:

- Improved malaria case management
- Vector control through the universal use of ITNs
- Control of malaria in pregnancy
- Malaria epidemic prevention and control.

The following targets are to be achieved over the next five years:

- The use of correct, affordable and appropriate treatment for fever, within 24 hours of onset, will be raised from 19% to 60% at community level.
- In health facilities 80% of uncomplicated and severe malaria cases in children under five years of age will be appropriately treated by 2007.
- At least 60% of the children under five years of age and 60% of pregnant women will be sleeping under appropriately treated mosquito nets by 2007.
- 60% of pregnant women will be effectively protected against the effects of malaria through the use of IPT by 2007.
- All epidemic prone districts will have increased their capacity to detect malaria epidemics early and contain them.

For the strategic approaches the following interventions will be implemented:

Disease Management (early diagnosis and treatment)

- Integrated Management of Childhood Illnesses (IMCI);
- Intensified IEC and capacity building to communities, drug vendors, health providers and mothers on early detection and proper case management;
- Training of health facility staff to improved malaria diagnosis and treatment at health facility facilities;
- Training on malaria treatment for private drug vendors and others selling drugs to improved the quality of treatment available at community level;
- Monitoring of the quality and therapeutic efficacy of anti malarial drugs;

Vector Control

- Increased investment for demand creation for insecticide treated nets, especially for young children and pregnant women
- Increased investment to develop networks for the distribution of insecticide for ITN treatment
- Introduction of a voucher scheme to decrease the cost paid by pregnant women for an ITN
- Introduction of a scheme to provide a free ITN re-treatment kit for all infants completing DPT3 and measles vaccination.
- Introduction of systems to regularly monitor mosquito response to the widespread use of ITNs

Epidemic Prevention and Control

- Establishment of systems for early warning and detection of epidemics;
- Contingency plans for the control of epidemics will be put in place;

Prevention of Malaria in Pregnancy

- Training for antenatal clinic staff to encourage early and effective treatment
- Promotion and use of ITNs during pregnancy
- Provision of free Intermittent Preventive Treatment.

Complimentary strategies for institutional development, human resource capacity building, information for behaviour change, operational research and performance monitoring are elaborated in the document.

Financial Resources

Our partners have assured a significant increase in the budget available for malaria control. Funding gaps remain but with renewed interest in malaria control, provided good stewardship can be demonstrated, it should be possible to fully fund the planned activities.

The estimated budgetary requirement for the next five years is US\$ 76 Million. Out of this US\$ 11 Million should be directed to the 114 councils to encourage district implementation of malaria control activities.

ACRONYMS

AMMP	-	Adult Morbidity and Mortality Project
AMREF	-	African Medical Research Foundation
ANC	-	Ante-natal Clinic
AQ	-	Amodiaquine
CBO	-	Community Based Organization
CDC	-	Center for Disease Control (Atlanta)
CDHP	-	Comprehensive District Health Plans
CEEMI	-	Centre for the Enhancement of Effective Malaria Interventions
CHMT	-	Community Health Management Team
CORPS	-	Community Resource Persons
CQ	-	Chloroquine
CTU	-	Central Transport Unit
DFID	-	Department for International Development (UK)
DHB	-	District Health Boards
DHS	-	District Health Services
DMO	-	District Medical Officer
DPS	-	Director, Preventive Services
DSS	-	Demographic Surveillance System
EANMAT	-	East Africa Networking for Monitoring Anti-malarial Treatment
EDP	-	Essential Drug Programme
GDP	-	Gross Domestic Product
GFATM	-	Global Fund to Fight AIDS, Tuberculosis and Malaria
GIS	-	Geographic Information System
GOT	-	Government of Tanzania
GTZ	-	Deutsche Gesellschaft für Technische Zusammenarbeit
HEU	-	Health Education System
HMIS	-	Health Management Information System
HSR	-	Health Sector Reform
IAMCC	-	Inter Agency Malaria Coordination Committee
IDSR	-	Integrated Disease Surveillance Response
IEC	-	Information, Education and Communication
IHRDC	-	Ifakara Health Research and Development Centre
IMCI	-	Integrated Management of Childhood Illnesses
IPT	-	Intermittent Preventive Treatment
ITNs	-	Insecticide Treated Nets
JICA	-	Japan International Cooperation Agency
JMP	-	Joint Malaria Project
KCMC	-	Kilimanjaro Christian Medical Centre
KINET	-	Kilombero Net Project
LLN	-	Long Lasting Net
MARA	-	Mapping Malaria Risk in Africa
MCH	-	Maternal and Child Health
MMTSP	-	Malaria Medium Term Strategic Plan
MoH	-	Ministry of Health
MRC	-	Medical Research Council (UK)
MSD	-	Medical Stores Department
MSF	-	Médecins Sans Frontières
MTEF	-	Medium Term Expenditure Framework
MTSP	-	Medium Term Strategic Plan
MUCHS	-	Muhimbili University College of Health Sciences

NATNETS	-	National Net Strategy
NGO	-	Non-Governmental Organization
NIMR	-	National Institute of Medical Research
NMAC	-	National Malaria Advisory Committee
NMCP	-	National Malaria Control Programme
NORAD	-	Norwegian Agency for Development
NPEHI	-	National Package of Essential Health Interventions
NSSS	-	National Sentinel Surveillance System
PHC	-	Primary Health Care
PORALG	-	President's Office Regional Administration and
POW	-	Plan of Work
PSI	-	Population Service International
RAS	-	Regional Administrative Secretary
RBM	-	Roll Back Malaria
RCHS	-	Reproductive and Child Health Section
RHMT	-	Regional Health Management Team
RMO	-	Regional Medical Officer
RNE	-	Royal Netherlands Embassy
SDC	-	Swiss Development Corporation
SMITN	-	Social Marketing of Insecticide Treated Nets
SMARTNETS	-	Strategic Social Marketing for Expanding the Commercial Market for ITNs in Tanzania
SP	-	Sulfadoxine / Pyrimethamine
SWAP	-	Sector Wide Approach
TBAS	-	Traditional Birth Attendants
TEHIP	-	Tanzania Essential Health Integrated Project
TMA	-	Tanzania Meteorological Agency
TMIS	-	Transport Management Information System
TPRI	-	Tropical Pesticides Research Institute
UNDP	-	United Nations Development Programme
UNICEF	-	United Nations Children Fund
USAID	-	United States Agency for International Development
WHO	-	World Health Organization
ZTC	-	Zonal Training Centre

Chapter One: Country Profile

1.1 Country Profile

The United Republic of Tanzania lies between the latitudes 1° S and 12° S and longitudes 30° E and 40° E. It covers an area of 945,050 km² including 59,050 km² of inland waters. Long rains occur from March to May, and short rains from November to January. There are four distinct topographical zones. The Coastal Lowlands extending from the seashore for about 150 kms. inland to an altitude of about 300m. This zone is humid and has temperature variations from 20° C to 30° C. The Central Plateau has more marked diurnal temperature variations, being warm to hot during the day, and cool at night. The Basins around Lakes Victoria and Tanganyika have relatively high temperatures and humidity, and heavier rainfall. The highland areas surrounding Mountain Kilimanjaro and the Southern Highlands have cooler temperatures and medium to heavy rainfalls.

1.2 Administrative Structure

Tanzania's mainland has 20 regions (Fig. 1) and 114 councils. Each council is divided into 4-5 divisions, which in turn are composed of 3-4 wards. 5-7 villages form a ward. There are a total of about 10,045 villages. Since 1972 the government administration has been decentralised in order to promote people's participation in the planning process as well as to facilitate local decision-making.

The council is the most important administrative and implementation authority for public services. For this reason the Ministry of Health (MoH) is currently strengthening the district health services, making the district the focus for health development ¹.

1.3 Demographic and Socio-economic Indicators

Tanzania has an estimated population of 33.8 million (1999 estimates), with an annual growth rate of 2.8%. 76% of the people live in rural communities. 20% of the population are children under five years of age, 27% are 5 to 15 years olds, and 20% are women of reproductive age (between 15 to 49 years). The Gross Domestic Product (GDP) per capita was US\$ 213 in the year 2000. A national census is planned for August 2002.

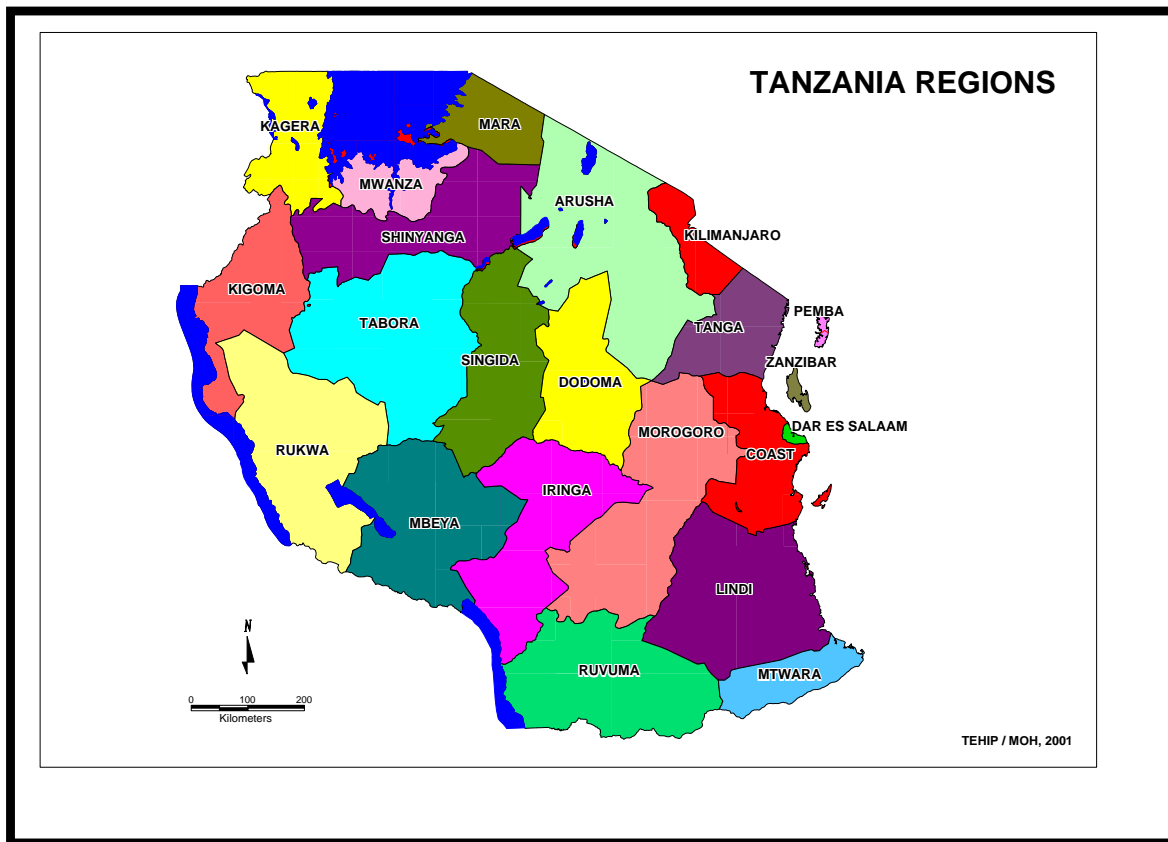
The real annual economic growth rate rose from 4% to 4.9% between 1998 and 1999 while the inflation rate decreased from 17.8% to 7.6% over the period. About 27% of the population are poor spending less than \$0.50 per day and 48% are basic need poor spending less than \$ 0.65 per day (HMIS 1999).

The current estimated infant mortality and under five year mortality rates are 99 and 152 per 1,000 live births respectively. Maternal mortality is estimated at 529 deaths per 100,000 live births. Life expectancy at birth is 45 years.

¹ Policy Paper on Local Government Reforms 1998

Figure1

Map of the Republic of Tanzania



Chapter Two: National Health Policy

2.1 Health Services Delivery

The health services delivery providers in Tanzania are the government, voluntary agencies and the private sector. The health service delivery system is organised and resourced at various as shown in Table 1.

The Ministries of Health and President's Office Regional Administration and Local Government (PORALG) are jointly responsible for the delivery of government health services. Consultant hospitals, zonal health training centres and vertical programmes are directly under the Ministry of Health. PORALG manages district and regional health services.

2.2 Health Care Facilities in Tanzania

Table 1:
Health facilities according to ownership

Ownership	Consultant Specialised	Regional Hospital	District Hospital	Other Hospital	Health Centre	Dispensary
Government	6	15	39	4	211	2019
Voluntary	2	0	10	50	38	543
Para-statal	0	0	1	3	9	110
Private	1	0	0	33	11	396
Total	9	15	50	90	269	2562

Source: HMIS Annual Report - 1997

A dispensary serves a population of 6 - 10 thousand people, a health centre, 50 - 80 thousand and a district hospital 250 thousand. The regional hospital serves as a referral centre to 4 - 8 district hospitals and the four consultant hospitals serve several regional hospitals.

Although a more equitable geographical distribution of health services infrastructure has been achieved the government, because of the economic problems which started in the 1980's, has not been able to meet the recurrent expenditure for these services,.

Reduced expenditure led to a deterioration of health infrastructure, low salaries, unmotivated staff, the lack of an efficient and effective drug distribution system, inadequate supervision and management. This, coupled with severe constraints imposed on the private medical sector², deprived citizens of good health care. To address these problems, the MOH assessed the health sector's performance in order to revise strategies to improve the quality of health services and increase equity in access and utilisation. The appraisal culminated in the development of proposals for Health Sector Reform in 1994 followed by the 1999 -2002 plan of work (POW).

Renewed confidence in the intentions of the Ministry of Health and the Government, resulting from these reforms, has encouraged increased donor support so that significant new resources, through a SWAP, are now available to finance improved health related services in Tanzania.

² Tanzania Social Sector Review 1999

2.3 National Health Policy and Health Sector Reforms

2.3.1 National Development Vision

The Planning Commission issued guidelines in 2000 to all sectors, regions and districts on how the development vision 2025 could be incorporated during the preparation of sector Medium Term Strategic Plans (MTSP⁵).

2.3.2 National Development Plan

The social policy objective under the National Development Plan 2000/01 is to improve performance in the delivery of social services (health, education and water). The specific objectives for the health sector are to:

- Improve the quality of the health services with emphasis on primary health care
- Encourage the participation of communities, NGOs and the private sector
- Introduce measures to increase local resources
- Introduce alternative sources of financing to improve service delivery.

Prevention and control of infectious diseases is a priority area.

2.3.3 Poverty Reduction Strategy (Health Sector Component)⁶

The GoT is committed to placing special emphasis on reducing mortality and morbidity, improving nutrition and strengthening access to health services and water. A National goal is to arrest the decline in life expectancy due to the impact of HIV/AIDS and then raise it to 52 years by 2010. In line with this overarching goal, the government intends to pursue policies and programmes which will:

- Lower the infant mortality rate from 99 to 85 per 1000 live births in 2003
- Reduce under five mortality from 147 to 127 per 1000 live births by 2003
- Lower maternal mortality rate from 529 to 450 per 100,000 live births by 2003
- Reduce malaria case fatality for under fives from 12.8% to 10% by the year 2010
- Raise the proportion of the rural population that has access to safe and clean water from 48.5 % in 2000 to 55% in 2003

2.3.4 National Health Policy

The National Health Policy has been amended since its inception in 1990 to encompass the health sector reform process so that decentralisation of health service delivery with collaboration from the private sector is possible. The objectives of the National Health Policy, detailed below, provide the framework for a sound MoH Medium Term Strategic Plan (MTSP) from which the Malaria Control Medium Term Strategic Plan has been developed.

Health Sector Reform is being coordinated and harmonised with Local Government Reforms and Civil Service Reforms.

The Tanzanian health policy Reform vision is to **improve the health and well being of all Tanzanians with a focus on those most at risk and to encourage the health system to be more responsive to the needs of the people**. Success in achieving the

⁵ Speech by the Minister of State to the Planning Commission – June 2000

⁶ Poverty Reduction Strategy Paper (PRSP), United Republic of Tanzania

objectives will require adequate solutions to current systematic problems that currently affect the delivery of health services.

The health sector reforms are designed to produce an efficient and effective health system. Efficiency and effectiveness will be realized through:

- Change in the way the Health Sector is managed and financed
- Shifts in roles and responsibilities
- Introduction of measures that will ensure equity in the provision of health and health care.
- Direction of resources to essential clinical and public health packages.

2.3.5 Immediate objectives of Health Sector Reform

- i. Improve access, quality and efficiency of Primary Health services
- ii. Strengthen and orient secondary and Tertiary service delivery in support of primary health care
- iii. Improve capacity for policy development and analysis, development of guidelines for national implementation, performance monitoring and evaluation and legislation and regulation of service delivery and health professionals
- iv. Implement a human resources programme to train adequate numbers of health staff to manage the services (primary, secondary and tertiary)
- v. Strengthen the national support systems for personnel management, drugs and supplies, medical equipment and physical infrastructure management, transport management and communication
- vi. Increase the financing sources and improve financial management
- vii. Promote private sector involvement in the delivery of health services
- viii. Within the sector-wide approach, develop and implement a system for donor involvement, co-ordination, monitoring and evaluation

The Tanzanian Health Sector Reform Strategy is described in more detail in the POW document³.

The Tanzanian Government made a decision to implement Roll Back Malaria (RBM) strategy in line with Health Reforms

2.3.6 The National Package of Essential Health Interventions

Malaria features strongly in the National Package of Essential Health Interventions (NPEHI) of January 2000⁴. The NPEHI defines the priority health problems and disease conditions causing the highest morbidity and mortality in the country (table 2).

2.3.7 Central Support and Logistics³

Infrastructure, transport, HMIS, human resources and the supply of drugs and medical equipment are currently being addressed through Health Sector reforms. Strategies to be applied are described in detail in the MoH Programme of Work Document (Strategy 5 - Central Support System). The purpose of the strategy is to develop support systems that will strengthen and facilitate the provision of better health services to all the people of Tanzania.

³ The Health Sector Reform Programme of Work (July 1999-June 2002)

⁴ The National Package of Essential Health Interventions (January 2000), MOH, Dar es Salaam, Tanzania

³ Programme of Work July 1999-June 2002 pages 74-77, MOH

Table 2:
Components of the Essential Health Package

National Health Package Clusters			
1	Reproductive and Child Health - Maternal conditions - Ante natal care - Obstetric care - Post natal care - Gynaecological, STD/HIV - Family planning - IMCI - Perinatal conditions - Immunisation - Nutritional deficiencies	2	Communicable Disease Control - Malaria - TB/Leprosy - HIV/AIDS/STD - Epidemics
3	Non-Communicable Disease Control - Cardiovascular diseases - Diabetes - Neoplasms - Injuries/Trauma - Mental Health - Anaemia and Nutritional Deficiencies	4	Community Health Promotion and Disease Prevention - IEC - Water hygiene and sanitation - School health promotion
5	Treatment and care of other common diseases of local priority.		

The MoH has developed policy guidelines and standards for:

- Human resource development and management
- The Pharmaceutical Sector (Master Plan)
- Laboratory services, including an adequate transport system, for the distribution of drugs and medical supplies and supervision visits, and quality assurance schemes
- Estate and infrastructure management
- Medical equipment management

Although the drugs, medical supplies and diagnostics budget has increased slightly since the introduction of Health Sector Reforms in July 1999, there is still a large funding gap⁹ between projected needs and available funds. The estimated drug requirement for 2001/2002 for the MoH was Tshs 22 Billion while the funds available were Tshs 13.1 Billion (GoT: TSh 10 Billion, Health Basket 1.6 Billion, Health Sector Programme Support (HSPS) 1.5 Billion).

⁹ Drugs/medical supplies estimated needs July 2001- June 2002 report by the Chief Pharmacist MoH, March 2001

Chapter Three: Malaria in Tanzania

3.1 Malaria Situation in Tanzania

3.1.1 Malaria Epidemiological Stratification

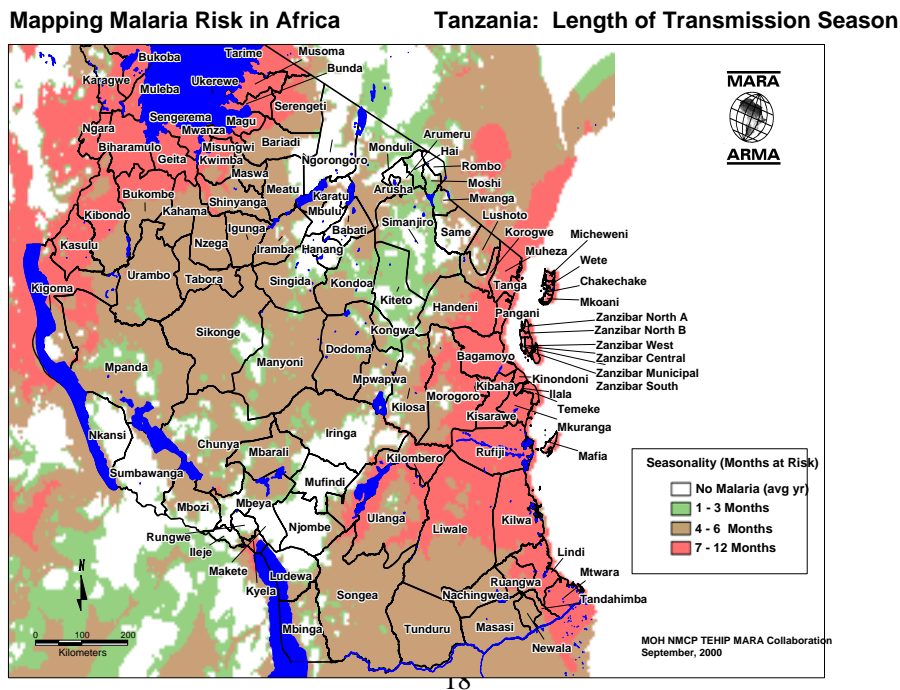
Malaria is endemic in almost all parts of Tanzania. There are, however, variations in endemicity, which are conventionally classified as: unstable seasonal malaria, stable malaria with seasonal variations, and stable perennial malaria.

Unstable seasonal malaria occurs with a transmission period of not more than 3 months a year. In these areas malaria may occur in epidemics when there is increased transmission, morbidity, and mortality. The areas are mountainous with altitudes up to 2000 metres, temperatures up to 20⁰ C and mean vapour pressures of 13-15 millibars. In higher altitude areas, there is usually no malaria transmission. In recent years the expected pattern has been changing with increasing numbers of epidemics occurring. About 25% of the population live in epidemic prone areas, generally with little immunity, these people are susceptible to **severe malaria in all age groups**.

Stable malaria with seasonal variations occurs where there is seasonal intense transmission for 3 to 6 months in a year. It occurs in high altitude plains, with temperatures above 15⁰ C, and mean vapour pressures of 10-20 millibars. About 33% of the population live in these areas. These people have weak immunity in all age groups, and are therefore susceptible to **severe malaria**.

Stable perennial malaria occurs along the coast extending inland as far as 160-240 Km. These areas have temperatures of 24-32⁰ C year round, mean vapour pressures of 26-29 millibars, and are inhabited by about 42% of the population. Most age groups have considerable immunity increasing with age.

Fig. 2 Stratification of malaria transmission in Tanzania



3.1.2 Summary of Epidemiological Indicators

Table 3: Population at Risk in various transmission zones

Transmission	Zone	Population
Over 6 months stable (perennial)	Coastal	14,000,000 (42%)
4-6 months (stable seasonal)	Central Zone	11,300,000 (33%)
1-3 months (strongly seasonal or epidemic)	Fringe highlands Rift valley	2,600,000 (8%)
Less than 1 month (epidemic potential or no malaria)	Highlands	5,800,000 (17%)

(Source MARA)

Table 4: Burden of malaria disease

Estimated number of malaria cases per year	14 - 18 million
Estimated number of deaths per year due to malaria	100,000-125,000 (70 - 80,000 < 5yrs)
Annual incidence:	400 - 500 per 1000 (double in < 5yrs)
Reported annual malaria mortality rate, all ages	141 - 650 per 100,000
Reported annual malaria mortality in 0 - 4 year olds	300 - 1,600 per 100,000

(Source: National Malaria Control Programme, DPS, MOH)

The groups most vulnerable to malaria are:

- Children under five years of age (7.1 million)
- Pregnant women (1.69 million)

Table 5: Malaria at health facilities (1997)

• The leading cause for outpatient attendance for children under 5yrs (38%)
• The leading cause for outpatient attendance for ages 5 years and above (32%)
• First ranked cause of deaths in hospitalised children under 5 years (31%)
• First ranked cause of deaths in hospitalised patients of all ages (19%)
• The leading cause of admissions for children under five years of age (43%)

(Source National Malaria Control Programme, HMIS, DPS, MOH))

3.1.3 Major transmission vectors and parasite species

There are three main insect vectors of malaria parasites in the country: two members of the *Anopheles gambiae* complex (*Anopheles gambiae sensu stricto* and *An. Arabiensis*) and *Anopheles funestus*. The predominant vector in areas with stable perennial transmission is *An. gambiae* s.s.. *An. funestus*, found particularly in humid areas and around permanent water bodies, such as rivers, lakes and dams, often coexists with *Anopheles gambiae*.

The vectors may vary according to the seasons and local conditions. Other members of the *An. Gambiae* complex, regarded as minor vectors, are sometimes important causes of transmission in localized areas. The salt breeding *An. gambiae* member *Anopheles merus* is found along coastal strips and has a potential for malaria transmission. In epidemic prone areas *Anopheles arabensis* is often implicated⁵.

Plasmodium falciparum accounts for over 95% of the infections occurring in the country. This species not only causes the severest forms of malaria, but has also developed drug resistant strains. For the first line anti-malarial, sulfadoxine / pyrimethamine the overall parasite resistance rate is 13%. For the second line drug, amodiaquine, it is 6%. Infections caused by *P. vivax* and *P. ovale* constitute a minor portion of the disease burden, result in less severe disease and are not subject to a severe threat of drug resistance.

3.1.4 Public Health Importance

Malaria accounts for over 30% of the national disease burden so its control should be a top priority for the allocation of national resources. It is a threat to every one of the estimated 32 million people (94% of the population) living in areas where transmission is possible. It is a major cause of under-five mortality, particularly in children aged less than two years, and inflicts a huge burden of disease, due to anaemia, especially in pregnant women. Infants and children have low immunity while pregnancy reduces acquired immunity. The probable impact on cognitive capacity in children is only now beginning to be recognised but may be significant⁶.

3.1.5 Economic Cost

Malaria costs the country at least 3.4 percent of Gross Domestic Product each year through the costs of treatment and prevention, the direct costs of the deaths that result from infection, reduced productivity in the workforce and absenteeism from education. The cost of outpatient care, per case, has been conservatively estimated to be TSh 1,600 while that for inpatient care is at least TSh 20,000 per case.

Overall Tanzania spends approximately TSh 2,200 (US\$ 2.14) per person per annum on malaria services (1998/9 figures) representing approximately 39% of total health expenditures and 1.1% of GDP⁷. 71% of total malaria spending is from private sources (i.e. household expenditures) in the formal and informal private sector, with the Government of Tanzania representing a further 20% and the remainder attributable to donor funding.

3.2 Malaria Accelerated Plan of Action 1997-2000

3.2.1 Accelerated Implementation of Malaria Control 1997-2000 (MoH/WHO)

Tanzania was one of the first 20 African countries selected, in the mid 1990's, to plan and implement a programme for accelerated Malaria control. In February 1997 a four-

⁵ Mboera LEG (Ed). Fifty years of health research in Tanzania: An annotated bibliography (1949-1999) pp 6-13. DUP 2000.

⁶ Bremen JG The ears of the hippopotamus: manifestations, determinants and estimates of the malaria burden. Amer J Trop Med Hyg 2001; 64 S: 1-11

⁷ M.Jowett, N.Miller & N.Mnzava. Malaria Expenditure Analysis, Tanzania case study. Prepared for the Roll Back Malaria Initiative/DFID-EA(Tz). March 2000. Centre for Health Economics, University of York.

year plan of action for malaria control was completed and a detailed one-year plan of action was developed.

3.2.2 Implementation progress for the period 1997-2001⁸

(i) Malaria case management including malaria prevention in pregnancy:

Between 1997 and 2001, 2,500 prescribers throughout the country received training on malaria case management. Three hundred nurses were trained on nursing care for severe malaria and other severe childhood illnesses. In addition supplies for management of severe malaria were provided to health facilities. 75 laboratory technologists and assistants were trained on malaria microscopy including the Acridine Orange (AO) method.

MCH coordinators were trained on intermittent preventive treatment (IPT) for pregnant women.

Training manuals for prescribers and nurses along with Policy guidelines and Information, Education and Communication (IEC) materials, tailored to the requirements of different levels of health delivery, have been developed and distributed to all health facilities.

Japanese International Co-operation Agency supplied laboratory diagnostic equipment and consumables (microscopes and AO supplies) to all district and regional hospitals

(ii) Monitoring Anti-malarial Treatment Efficacy:

Five countries in East Africa and The Great Lakes Region (Burundi, Kenya, United Republic of Tanzania, Rwanda and Uganda) have embarked on a joint initiative, called The East African Network for Monitoring Anti-malarial Treatment (EANMAT), to address the need for drug sensitivity data in the face of increasing anti-malarial drug resistance in malaria parasite species. These four East African countries are gathering and sharing information on malaria chemotherapeutic sensitivity in order to inform rational treatment policy and the choice of effective chemotherapy for malaria in the sub-region.

Testing of anti-malarial drugs in 1998 and 1999 at 6 of the 8 sentinel sites in Tanzania revealed high levels of parasite resistance to chloroquine (CQ). Other drugs tested were amodiaquine (AQ) and sulfadoxine/pyrimethamine (SP). Results showed a treatment failure rate for chloroquine, at two testing sites in 1999 (Masasi and Mlimba), of 31% and 65% respectively. The total failure rates for chloroquine from previous studies in 1997 were 43%, 42% 50% 28% and 56 % for Dar es Salaam, Butimba, Muheza, Kyela and Kigoma, respectively.

These results, confirming earlier studies on chloroquine, prompted the Ministry of Health to adopt recommendations from The National Malaria Drug Policy Task Force to change the treatment policy for malaria in the country. The Ministry of Health now recommends **Sulfadoxine / Pyrimethamine (SP)** as the first line drug for treatment of uncomplicated malaria. Of all the marketed options it fulfils best the requirements for efficacy, safety, affordability and availability. **Amodiaquine** is now recommended as the second line drug for uncomplicated malaria. **Quinine** remains the third line drug for uncomplicated malaria and the

⁸ Plan of Action for Implementing Roll Back Malaria in Tanzania, MoH/WHO. 2000/2001

drug of choice for the treatment of severe malaria. The Task Force has prepared new treatment guidelines and an information campaign has been launched to inform the public and prescribers of the change. Drug distribution was implemented, through MSD, in August 2001.

(iii) Vector control using ITNS

There is a long history of mosquito net use in Tanzania. From 1982 to 1995 a number of small-scale but important ITN research and implementation projects were conducted in various parts of the country. These provided encouraging results that were followed through between 1996 and 2002 as Population Services International (PSI), on behalf of the Ministry of Health, and the Ifakara Health Research and Development Centre (IHRDC) implemented social marketing projects for ITNs (SMITN I & II and KINET). The KINET project confirmed the impressive results possible through ITN use and provided solid evidence for the National ITN Strategy.

The SMITN project has:

- Created demand for and raised awareness of ITNs throughout the country
- Stimulated local manufacturers to increase production with real reductions in price
- Encouraged the Government to address the issue of taxes and tariffs on ITNs, netting materials and insecticides for net treatment
- Enabled the nationwide introduction of individual insecticide kits for home treatment of nets.

The KINET project through social marketing and targeted subsidies has demonstrated a reduction of all causes mortality in children less than two years of 27%. Declines in infection rates of up to 50% and real reductions in anaemia, with improved pregnancy outcomes, have also been observed⁸.

Other achievements in the area of ITNs include:

- The establishment of a multi-sectoral task force for the implementation of ITNs to oversee development and initial implementation of a national plan
- The production of a National strategy for the scaling up of ITN use and the creation of an implementation cell
- A successful bid to the Global Fund to Fight AIDS, Tuberculosis and Malaria to finance a voucher scheme to decrease the cost of an ITNs for pregnant women and to provide for free insecticide re-treatment kits for infants who complete DPT3 and measles vaccination.

For the potential benefits to be realized significantly higher rates of usage of ITNs are required nation wide.

(iv) Malaria epidemic prevention and control

The National Malaria Control Programme has been working very closely with malaria epidemic affected districts to contain epidemics. Health education was provided to community leaders, schoolteachers, estate workers and communities in epidemic/epidemic prone districts (covering vector control, self-protection and use of ITNs as well as recognition of early signs of fever/malaria and case management). Other measures applied to control epidemics include larviciding and house spraying.

⁸ KINET Report. IHRDC Ifakara.

During 1998 a guideline on epidemic preparedness was written and 24 staff from 10 epidemic prone districts were trained. Twenty-five Hudson x-pert sprayers were procured and distributed to epidemic prone districts.

(v) Operational Research Implementation Progress

Several institutions and other RBM partners are involved in operational research on malaria: NIMR, Muhimbili University College of Health Sciences (MUCHS), IHRDC, Adult Morbidity and Mortality Project (AMMP), Tanzania Essential Health Interventions Project (TEHIP) etc. Progress has been made in the following areas:

Anti-malarial drug efficacy and effectiveness:

- Sentinel site Monitoring (EANMAT)
- Assessing the efficacy of new anti-malarial drugs including LAPDAP, Artemisinin derivatives and novel Artemisinin based combinations (ABCT)
- Impact of combination therapy in reducing the rate of development of drug resistance, transmission intensity, health impact and costs/cost effectiveness
- Efficacy of Intermittent Preventive Treatment in pregnancy
- Efficacy of Intermittent Preventive Treatment in infants
- Efficacy of post-recovery SP dose in severe anaemia management and prevention
- Long term impact of ITNs on child survival
- Impact of ITN coverage on health, malaria transmission and mosquito ecology.

Malaria transmission monitoring:

- Impact of malaria transmission on malaria morbidity and mortality: NIMR / Joint Malaria Program (JMP)
- Transmission intensity monitoring (Entomological Inoculation Rate estimation).
- Mapping malaria risk in Tanzania

Malaria morbidity and mortality assessment:

- Malaria specific mortality estimation

Malaria control policy guidelines and strategies:

- Cost & cost-effectiveness of the change of anti-malarial treatment policy
- Costing of malaria case management at home and at health facility
- Markets for and access to anti-malarials
- Policy formulation process within the MoH

Malaria care seeking patterns and health systems:

- Health seeking behaviour and malaria treatment practices
- Community voice towards improving health-seeking behaviour
- Health systems research on reducing the burden of disease including malaria
- Assessment of the impact of IMCI strategy (malaria as the main disease indicator)

Malaria Control Monitoring Tools:

- Molecular markers for monitoring drug resistance
- Simplified assessment tools for anti-malarial drug resistance

3.3 Roll Back Malaria in Tanzania

Tanzania is a signatory to the Harare Declaration (1997) and the Abuja Declaration (2000); both address malaria control in Africa.

Tanzania sent a delegation to the inception meeting for Roll Back Malaria for the Eastern Africa sub-region in Nairobi, April 1999. At the inception, Tanzania stipulated that malaria control would be implemented in the context of health reforms. RBM was the main theme at the Annual Regional Medical Officers' conference held in August 1999. In May/June 2000 district planning workshops for malaria control were held in all regions. Roll Back Malaria has been introduced at the central, regional and district levels and partners have been collaborating with MoH on Roll Back Malaria

3.4 Malaria Control in the Context of Health Sector Reforms

The Ministry of Health with a number of partners including the World Health Organisation, confirmed their support to the principles of a sector-wide approach. They committed themselves to explore its implementation in a gradual and incremental manner through a joint statement of intent in March 1998. Implementation of Health Sector Reforms applying sector wide approaches started in July 1999 after finalisation and approval of the Programme of Work (POW), 1999-2002, in March 1999.

An annual Plan of Action is prepared based on available resources and previous year's performance. The Malaria Annual plan, developed from the Malaria Mid Term Strategic Plan, will be integrated into the Directorate for Preventive Services, annual plan which in turn will be integrated in the MoH annual MTEF.

Progress in implementation of the Malaria Annual Plan is examined annually with other MoH priorities during the government annual review of the health sector. During the last 4 reviews (1999, 2000, 2001 and 2002) support for malaria has been strongly endorsed by the donors.

Chapter Four: The Malaria Medium Term Strategic Plan

The impact of this Malaria Medium Term Strategic Plan (MMTSP) will be two fold:

1. *A reduction of malaria mortality by 50% of year 2000 levels by 2010*
2. *A reduction of malaria morbidity by 50% of the year 2000 levels by 2010*

The MMTSP has been developed by the NMCP, in line with the RBM initiative for the African Region, to promote the establishment of functional health systems at all levels and to encourage a **massive national effort to control malaria**. Changes in malaria morbidity and mortality, progress towards the milestones set by RBM and the Abuja Declaration⁹ and delivery against annual plans of action will be monitored within the evolving Health Sector Reform Programme.

The Government of the Republic of Tanzania is committed to contribute to the realisation of the RBM objectives through the implementation of this Malaria Medium Term Strategic Plan. For each strategic approach the situation, covering experiences, achievements, major weaknesses and opportunities, is summarised. Targets and implementation strategies derived from this situation analysis are defined along with the indicators for monitoring and evaluation and the contributions required of central, region and district authorities.

4.1 Outline of the Strategic Plan

4.1.1 Goal

Reduce malaria to a level where it is not a major public health problem nor an obstacle to social and economic development.

4.1.2 Objective

Prevent malaria related mortality and reduce morbidity due to malaria in all 20 regions of the country by 25 % by 2007 and by 50% by 2010

4.1.3 Strategies and Specific Objectives

Strategy 1: Improved malaria case management (section 5.1)

- Ensure early diagnosis and treatment at all levels
- Improve quality of treatment and referral
- Ensure availability of effective anti-malarial drugs at all levels

⁹ 'The Abuja Declaration' – Summit of Heads of States and Government of African Countries, Abuja, Nigeria, 2000

Strategy 2: Vector control through the use of ITNs (Section 5.2)

- Reduce malaria transmission from vector to man through the use of ITNs by achieving high nation-wide usage in a cost effective and sustainable manner

Strategy 3: Prevention of malaria in pregnancy (Section 5.3)

- Prevent and control of malaria infection in pregnant women through: the delivery of free IPT, contributions towards the purchase cost of ITN commodities and the early recognition and effective treatment of anaemia and febrile illness

Strategy 4: Epidemic preparedness, prevention and containment (Section 5.4)

- Set up and implement an epidemic early warning and detection system in districts recognized as prone to malaria epidemics
- Set up a response system for prevention and control of malaria epidemics

4.1.4 Supportive / Complementary strategies

The effectiveness of the strategic approaches will be strengthened through implementation of the following **supportive and complementary strategies (SCS)**:

SCS 1: Operational Research (6.1)

Operational research (OR) is an essential tool for the development and fine tuning of the implementation strategies. The OR will gather evidence to informed decision-making and define new ways of solving implementation problems.

SCS 2: Promotion of Positive Health Practices (6.2)

Advocacy, sensitisation and the use of information for behaviour change, will aim to improve the health status of all Tanzanians. They will promote positive health behaviour and social change, focused on the individual, family and community.

SCS 3: Monitoring and Evaluation (6.3)

Monitoring and evaluation (M&E) is required to determine that the Malaria MTSP is advancing according to plan and interventions are being implemented at all levels as intended with the expected impact.

Chapter Five: Strategic approaches

5.1 Strategy I: Malaria Case Management

5.1.1 Policy Issues

- In 2001 the MoH produced new national guidelines for malaria diagnosis and treatment.
- Sulfadoxine / Pyrimethamine (SP) became the recommended first line treatment for uncomplicated malaria with Amodiaquine for second line treatment or where SP is contraindicated.
- The new policy defines at what level of health care delivery, including households, specific anti-malarial drugs should be made available at all times
- The anti-malarial drug policy provides guidelines for management of severe malaria cases in health centres and dispensaries
- The MoH is committed to ensuring high quality health service delivery to the public. The current MoH strategies encompass staffing needs, enhanced availability of drugs, laboratory equipment, diagnostic reagents and quality assurance.
- Strengthening district health services to address key public health concerns is a priority issue for the government to be tackled through HSR.

5.1.2 Rationale

The effective management of malaria cases is key to the successful reduction in the burden of disease, especially mortality. For the intervention to be effective the following issues must be addressed:

- Early recognition and proper management of febrile episodes in children at household level is vital.
- IEC strategies will be developed to create awareness among communities and sustain compliance and safe drug self-administration by consumers.
- The acquisition of adequate skills by health service providers is required if case management is to be improved. Up to date guidelines for malaria diagnosis and treatment have been developed. These will be updated regularly and made available to all cadres within the health sector.
- The introduction and application of IMCI protocols provides an excellent opportunity to reduce mortality and morbidity from malaria and anaemia in children.
- The availability of essential supplies at all times and at all levels of the health delivery system is required if the number of severe cases and the consequent morbidity and mortality is to be reduced.
- Monitoring of the therapeutic efficacy of anti-malarial drugs is important. Current data and trends of parasite resistance are required to inform decisions on treatment protocols and recommendations for first and second line anti-malarials.
- Quality assurance of pharmaceuticals is needed if adequate clinical cure is to be achieved when patients take recommended drugs. A robust registration procedure for pharmaceutical products, manufactured in the country or imported, and routine quality assurance monitoring, backed by effective legislation, must be guaranteed in order to protect consumers against counterfeit or substandard drugs.
- Data on adverse drug reactions must be collected routinely and disseminated in a timely manner in order to protect patients from unpredicted dangers and damaging rumours.

- Quality assurance of laboratory services is required if clinicians are to have confidence in laboratory results and start to base their treatment decisions on the evidence of laboratory tests. The role of the laboratory in the management of severe malaria cases and the detection of early treatment failure must be emphasised.
- Home management of fever is common. The cooperation of health care providers from the informal sector is therefore required if early case management is to be successful.

5.1.3 Current Situation

Sulfadoxine / Pyrimethamine (SP) is the recommended first line treatment for uncomplicated malaria. In cases where SP is contraindicated or where SP treatment failure is suspected Amodiaquine should be used as second line treatment. Quinine remains the treatment of choice for severe and complicated malaria. Where Amodiaquine treatment failure is suspected oral quinine is recommended as the third line drug for uncomplicated malaria.

The National Guidelines for Malaria Diagnosis and Treatment 2000¹⁰ were adopted in August 2001 as a response to the rapidly developing resistance of malaria parasites to chloroquine. Failure rates for chloroquine averaging 52%¹¹ were unacceptable given the potentially fatal nature of malaria infections. Implementation of the new policy has been largely effective; all districts are now being supplied with adequate stocks of SP and Amodiaquine. Prescribers from the public and private sectors have been introduced to the policy, training guidelines have been distributed and a public information campaign has been launched. Posters, magazines and flyers are accessible throughout the country and are displayed even in some of the remotest of drug outlets. Initial independent assessments however suggest that availability is patchy. Perceived fears of rare side effects from SP¹² and speculative media reporting continues to threaten confidence in the new policy.

Anti-malarial drug resistance remains a threat to the effective control of malaria in the country. SP is an interim solution pending the availability of more effective drug combinations that will be less likely to provoke resistance and thus have longer effective therapeutic life times¹³. A network for monitoring the efficacy of anti-malaria drugs is in place (EANMAT). These sentinel sites will provide data for monitoring the effectiveness of SP which is expected to fall, in time, from the current average level of 85%¹⁴. Evaluations of new drugs, particularly artemisinin-based combinations with existing and novel drugs, are on going. A further policy review, to explore the options for combination therapies, has been recommended by the National Malaria Advisory Committee¹⁵ in anticipation of the need to update the National guidelines within the next five years¹⁶.

The NMCP collaborates with The Pharmacy Board on issues related to the introduction of new anti-malarial drugs and the national reference laboratory for drug quality assurance.

¹⁰ National Guidelines for Malaria Diagnosis and Treatment. Malaria Control Series. No 1. 2000. Ministry of Health, United Republic of Tanzania, Dar-es-Salaam.

¹¹ EANMAT data – reports (www.eanmat.or)

¹² The use of anti-malarial drugs. pp 52-53. WHO Informal Consultation Report; WHO Geneva 2000.

¹³ White NJ. Delaying anti-malarial drug resistance with combination chemotherapy. *Parassitologia*. 1999; 41: 301-308.

¹⁴ National Malaria Advisory Committee, Clinical Sub-Committee meeting May 2002.

¹⁵ National Malaria Advisory Committee meeting. Dar-es-Salaam May 30. 2002

¹⁶ Anti-malarial drug combination therapy. WHO Technical Consultation Report; WHO Geneva 2001

Data collected in three districts (Hai, Morogoro and Temeke) have provided strong evidence for the new MTSP:

- Of those patients dying of suspected malaria, 56-80% had attended formal health services during their final illness. This indicates that measures focused on improving case management at health facilities are warranted.
- The majority of caretakers incorrectly treat their febrile children: only 11% of febrile children under-five receive correct treatment within 24 hours of the onset of fever; there is also a delay (average of 2.5 days) in seeking care at health facilities.
- Only 50% of children under five years of age with uncomplicated malaria and 54% with severe malaria are correctly treated in health facilities; anti-malarial 'stock-outs' have been frequent with 71% of public health facilities experiencing 'stock-outs' of anti-malarials for at least one week in three months.
- Laboratory and blood transfusion services are inadequate; malaria parasitological confirmation occurs in only 5-7% of all reported malaria cases. Dispensaries and health centres lack equipment and facilities for the detection of anaemia and quality control of laboratory services is generally not available.
- Only 11% of health workers had received training on improved malaria case management in the last 2 years. About 75% of health facilities are implementing IMCI in the districts where IMCI has been introduced. CHMT members have supervisory skills but they lack specific tools for malaria control issues and few have been trained on malaria case management.

Tanzanians generally know about uncomplicated malaria but do not associate anaemia and other symptoms of severe disease with malaria. Anti-malarials for home treatment are available at drug stores, general shops and kiosks¹⁷ but few shopkeepers (15%) are knowledgeable about anti-malarial treatment and none of the kiosk attendants surveyed knew the correct dosages for the anti-malarials they were selling. Some of the IEC materials on malaria disease management were available at the community level¹⁸. Provision for community owned resource persons, including village health workers, to treat malaria appropriately is limited. Only 10% of traditional healers shared current medical beliefs on malaria management.

5.1.4 Target

Target at Community level

Use of appropriate treatment for febrile episodes in children under five years of age, within 24 hours, will be raised from 19% to 60% by the year 2007

Target at Facility Level

By 2007 at least 80% of uncomplicated malaria cases in children under five years of age, in health facilities at all levels of health care, will be appropriately treated

¹⁷ RBM 2000 Situation analysis

¹⁸ IMPACT preliminary results February 2002

By 2007 at least 80% of severe malaria cases in children under five years of age, in health facilities at all levels of health care, will be appropriately treated

5.1.5 Operational targets

(i) Early detection and appropriate treatment at community level (Operational Approach A)

Implementation of this approach will ensure that:

- 60% of children under five years of age, with fever / malaria, receive correct treatment according to national guidelines within 24 hours of fever onset
- 80% of households receive targeted IEC messages on severe malaria and appropriate actions to be taken at home, including referral, according to national guidelines
- Drug stores, retail shops and kiosks only sell high-quality first line anti-malarial drugs and that correct doses are dispensed
- The proportion of shopkeepers that are knowledgeable about anti-malarial treatment is raised from 15% to 60%
- 50% of key community owned resource persons; including traditional healers and village health workers are able to provide correct advice on early detection and treatment of malaria in their communities.

(ii) Improved malaria diagnosis and treatment at health facilities (Operational Approach B)

Implementation of this approach will ensure that:

- 80% of uncomplicated malaria cases are managed according to the National Guidelines for malaria and IMCI
- 80% of severe cases of malaria are managed according to the National Guidelines for malaria and IMCI
- All public and private facilities are supervised on the correct application of the National Guidelines for malaria by knowledgeable CHMT staff
- A quality assurance system for laboratory services is established in all districts;
- Systems that ensure the availability of high quality anti-malarial drugs are strengthened
- Health facilities, districts and the NMCP operate an adequate and functional malaria surveillance and information system.

5.1.6 Interventions to improve malaria case management

To achieve these targets significant and consistent effort from National, Regional and District personnel will be needed. For communities to contribute as expected, they will require adequate information on how to recognize uncomplicated malaria, how to identify signs of severe malaria and the appropriate actions to be taken. High quality, effective and affordable anti-malarial drugs will have to be available at all times close to the users. Public and private health providers, including the informal sector, will require access to the information, essential equipment and pharmaceuticals necessary for them to manage malaria correctly.

The following actions will be taken:

(i) National level

Leadership

The Case Management Technical Committee, of the existing Drug Policy Task Force, will oversee and advise the NMCP on anti-malarial drug policy matters. A Case Management Team, headed by a senior clinician, will be established within the National Malaria Control Programme. The team will be responsible to the programme manager for the co-ordination of all aspects of the national response to improve case management.

The NMCP Case Management Team, in collaboration with RBM partners, will:

- Undertake regular revision of guidelines, training modules, and reference materials on malaria diagnosis and treatment for dissemination to prescribers, nurses and laboratory staff
- Define the minimum standards of service delivery for malaria management at district and community levels required of CHMTs
- Work closely with the IMCI Section of the Ministry of Health to implement improved malaria case management in children under five years in line with current IMCI protocols
- Liaise with the diagnostics unit of the MoH to define the role of laboratory services for malaria and establish a quality control mechanism for laboratory diagnosis to be implemented at all levels of health service provision.
- Define and establish mechanisms for collaboration and co-ordination between public and private health facilities
- Provide technical assistance and advice to districts on ways to improve malaria case management
- Liaise with the Human Resource Directorate of the MOH to ensure that the pre-service and in-service curricula of health training institutions are consistent with national guidelines for malaria diagnosis and treatment
- Establish effective links with the private sector and the media to ensure that accurate and up to date information on anti-malarial drugs is disseminated to the public.

Availability of high quality, effective and safe anti-malarial drugs

The incidence of serious consequences of malaria infection will only decrease once effective anti-malarial drugs are used early in the course of an individual's illness. The collaboration of many stakeholders is therefore required to ensure such availability at all levels throughout the country.

NMCP will co-ordinate the national response to anti-malarial drug issues such as quality assurance, efficacy monitoring, adverse effect detection and the selection of new artemisinin-based combination therapies. It will collaborate closely with the following stakeholders whose roles have a direct impact on drug availability and acceptability:

- MSD and private sector manufacturers and importers; to ensure the supply of only high quality malaria treatment drugs
- Pharmacy Board; to ensure a continuous drug quality-control mechanism and the responsible registration of new anti-malarial drugs in line with anticipated changes in national policy
- Research institutions; to a) ensure adequate monitoring of the efficacy of malaria treatment drugs through routine surveillance at sentinel sites and b) verify the efficacy, safety and cost-effectiveness of alternative malarial treatment drugs.

Early diagnosis and appropriate treatment at household level

Effective early diagnosis and treatment at household level requires people living in all communities, however remote, to have a) knowledge of the appropriate actions to take when a child is sick and b) access to quality assured treatments when and where they are needed. Interventions will focus on improving the likelihood that timely action will be taken in non-life-threatening and emergency situations, in response to episodes of fever in family members, especially in infants and pregnant women.

The NMCP IEC team in collaboration with RBM partners and the private sector will :

- Develop appropriate and innovative information packages for the public to encourage behaviour change
- Undertake a national campaign for community sensitisation on the signs and symptoms of malaria, including the dangerous ones, involving all appropriate media solutions
- Contract out the development of appropriate training, information and intervention packages to improve private sector delivery of anti-malarial treatments.
- Monitor and evaluate the effectiveness of the campaign

(ii) District and Community Level

Public Health sector

Council Health Management Teams under the leadership of District Medical Officers (DMOs) are now responsible for planning and allocation of resources within districts. Interventions to improve malaria case management at District and Community levels are therefore the responsibility of individual CHMTs and cannot be implemented by the National Programme. Activities will have to be planned and executed within the framework of the Comprehensive District Council Health Plans. DMOs will be required to ensure that all health workers have adequate and appropriate knowledge and skills for the diagnosis and treatment of malaria. Councils will be expected to comply with the minimum standards of care defined by the NNMCP and required by the Ministry of Health.

The CHMT must also now plan and budget for the provision and supply of sufficient quantities of anti-malarial drugs, other necessary supplies and equipment for malaria case management and laboratory diagnosis. The introduction of district budgeting tools, developed through the Tanzania Essential Health Integrated Project (TEHIP), to all districts in 2002 will greatly assist CHMTs in the successfully performance of this task..

District councils will be responsible for taking decisions regarding contributions towards the cost of prescriptions for anti-malarial drugs, possible cost recovery schemes and Community Health Funds.

Private Health sector

CHMTs will need to involve private health sector actors in training and information dissemination activities if case management targets are to be reached. Private sector providers are expected to play a key role in malaria case management and they should adhere to the diagnostic and therapeutic standards defined by the MoH. The CHMTs will be required to make provision for collaboration with private health care providers in their CDHPs. DMOs will be expected to supervise service delivery and performance.

Household sensitisation

CHMTs will be expected to take a proactive role in sensitising their communities on early recognition and treatment of febrile illnesses in children. They will need to generate high levels of awareness about the danger signs of malaria in children and the appropriate

actions required of the parents/caretakers. Key actors at community level will need to be mobilized.

The CHMTs in collaboration with district RBM partners and with technical support from Regional and national bodies will be required to:

- Plan, fund, manage and implement activities to improve case management
- Create awareness about the signs and symptoms of malaria in children and the related actions to be taken by parents and caretakers.
- Disseminate guidelines for diagnosis and treatment of malaria in all health facilities, including the private sector, and drug shops
- Enhance clinical skills for malaria diagnosis and treatment in health facilities through training and supervision
- Ensure smooth implementation of IMCI protocols in all health facilities
- Improve the performance of laboratory services to support the correct management of severe malaria cases and to detect malaria treatment failures
- Improve the referral system for severe malaria cases
- Ensure the rational use and availability of quality malaria treatment drugs in all health facilities
- Promote judicious anti-malarial drug dispensing practices from the informal sector through training and sensitisation
- Facilitate the monitoring of anti-malarial therapy and support trials on alternative / novel malaria treatment drugs

(iii) Research and Monitoring

The effectiveness of the approaches used for improving malaria case management will be constantly monitored. The key issues: anti-malarial drug efficacy and safety, IMCI implementation and impact, private and informal sector performance and epidemiological surveillance will be co-ordinated by the NMCP and contracted out as necessary. All NMCP partners will be expected to plan for adequate operational research and monitoring in their activities. The Network for effective monitoring and evaluation, due to be established as part of the Tanzania WHO Plan of Work, will provide the backbone for the required information gathering.

5.2 Strategy 2: Vector Control

Insecticide Treated Nets (ITNs) have the strongest evidence base for vector control effectiveness therefore the strategy will focus, for the period of this MTSP, on the implementation of the National Insecticide Treated Net Campaign (NATNETS programme), to substantially increase the use of ITNs nation wide. NMCP will continue to monitor evidence from other vector control interventions, for which there is currently little evidence of effectiveness, for possible inclusion in subsequent plans.

5.2.1 Policy issues

- The use of ITNs is one of the core interventions recommended by RBM. The goal is to increase ITN coverage to 60% of households in Africa over the next five years
- The government has committed itself, through the Abuja declaration 2000, to initiate appropriate and sustainable action to reduce the burden of malaria in Tanzania
- The Ministry of Health has adopted an implementation strategy to promote nation wide usage of Insecticide Treated mosquito Nets¹⁹
- A task force for the implementation of a National Insecticide Treated Materials scaling up process for Tanzania has guided the establishment of the National Nets Programme (NATNETS)
- A lean NATNETS Steering Committee will be established to provide oversight and scrutiny of the implementation of the scaling up process.

5.2.2 Rationale

The development of insecticide products for the treatment of mosquito nets and other domestic materials has provided a means of protecting vulnerable populations from malaria with a technology that is neither a drug nor a vaccine. Systematic reviews and meta-analysis²⁰ of the data from ITN trials in Africa have shown that ITNs can reduce mortality in children under 5 years of age by 20% and the number of malaria episodes experienced by protected children by 50%. ITNs have been demonstrated to be one of the most promising and cost effective methods available for controlling malaria in Sub-Saharan Africa. In Tanzania, for children alone, these findings translate into the possibility of averting the deaths of 20,000 - 30,000 children under the age of five years each year. Pregnant women who are exposed the threat of malaria also benefit greatly when they sleep under an ITN^{21 22}. Initial concerns that ITNs might simply push the burden of malaria morbidity and mortality onto older children now appear to be unfounded²³.

5.2.3 Current Situation

Tanzania has had a culture of net usage for a long time. A national strategy for implementation of ITNs has been developed. There is an indigenous net manufacturing industry and a willingness among the manufacturers to increase the quantity of nets available in the country and support distribution networks. The private sector

¹⁹ Taking Insecticide Treated Materials to National Scale in Tanzania. MoH. November 2000.

²⁰ Lengeler C. Insecticide treated bednets and curtains for malaria control (Cochrane Review). 1998. In: *The Cochrane Library*, issue 3, Oxford, UK.

²¹ Kisumu paper on ITNs and pregnancy.

²² KINET Report, IHRDC Ifakara.

²³ Binka, F.N., Hodgson, A., Adjuik, M., & Smith, T. (2002). Mortality in a seven-and-a-half-year follow-up of a trial of insecticide-treated mosquito nets in Ghana. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, **96**, 597-599.

(shopkeepers, NGOs, CBOs) has shown interest to carry out commercial distribution of ITNs. Research institutions are ready to undertake operational research into ITN use. Recent surveys show that there is already widespread use of mosquito nets especially in urban areas. In Tabora Urban and Mwanza Urban, 81% and 82% of households, respectively have at least one mosquito net²⁴. But on average only 12% of households have at least one ITN. About 11% of children under five years old and 8% of pregnant women sleep under ITNs. The availability and use of mosquito nets in the country varies according to location (rural/urban), malaria transmission pattern and presence of an ITN project in the area. Recent experiences show that it is possible to significantly increase the coverage of mosquito nets across all socio-economic strata but that re-treatment of ITNs remains a challenge²⁵.

5.2.4 Target

By the year 2007 at least 60% of the children under 5 years of age and 60% of pregnant women will be sleeping under an insecticide treated mosquito net

5.2.5 Operational Targets

- 60% of children under 5 years of age sleep under an ITN, treated within the last twelve months or a Long Lasting Net (LLN).
- 90% of the hamlets have at least one outlet for selling nets and insecticide for net treatment
- MCH clinic staff routinely give advice on the value of ITNs to pregnant women and carers of children under 5 years of age
- 60% of pregnant women sleep under an ITN, treated within the last twelve months or a Long Lasting Net (LLN).

5.2.6 Interventions to increase use of ITNs

To achieve the mid term targets and build a national culture of ITN use it is necessary to massively increase demand for ITNs. An estimated 1,353,000 women will be pregnant during the year 2002²⁶ and, over the next 5 years, on average 1.6 million infants will be exposed to the risk of malaria on any given night²⁷. Once there are an average of 2 nets per household, that last for five years, in 80% of households, 2.3 million nets will need to be replaced annually. For nets to be treated at least once a year 12 million net treatments will also be required.

The Strategy to deliver these results will rely on three interdependent components;

- a) the ITN Cell of the NMCP which will provide overall coordination and monitoring for the NATNETS ITN activities in Tanzania,
- b) a contracted Social Marketing Campaign (SMARTNET) which will also manage delivery of insecticide treatment kits for ITNs and
- c) an ITN Voucher Scheme, funded through the GFATM, to reduce the amount that pregnant women will have to pay for an ITN in the market place and to provide for free insecticide re-treatment kits for infants who complete DPT3 and measles vaccination.

²⁴ SMITN II End of project Survey – 2002.

²⁵ Report on the Analysis of SMITN II End-of-project Household Survey. K.Hanson and E.Warrall. LSHTM April 2002.

²⁶ Assumes a crude birth rate of 41 per thousand (DHS 1999 rural rate).

²⁷ Assumes 4.5% of the population are infants with an estimated current population of 33.8 million, projected to be 39.9 million by year 2007 (2.8% annual growth rate)

(i) National level

Leadership

The NATNETS Steering Committee will be formed out of the existing ITN Task Force. It will be a lean management group headed by the Chief Medical Officer, tasked with oversight and scrutiny of the NATNETS programme and The National ITN Implementation Team. The Team will be embedded within the National Malaria Control Programme under the Malaria Control Programme Manager. It will coordinate National ITN 'demand creation', facilitate the 'enabling commercial environment' required to increase ITN use and provide the strong management required to implement the ITN voucher scheme for pregnant women. A multi-stakeholder ITN Consultative Group will provide advice and advocacy support to the Implementation Team and the Steering Committee.

Demand creation

The government will invest significant resources to strengthen the existing public private alliance for the commercial distribution of ITNs. This is the most sustainable way of achieving its long-term ITN targets. Public funds, gathered from bilateral, multilateral and other donors will be used to procure high quality, dynamic promotion of ITNs at a national scale to drive demand creation.

A third phase of Social Marketing of ITNs (SMARTNETS) will be resourced to maintain the existing momentum for ITN demand and supply while core NMCP structures are established²⁸. This new approach to social marketing will focus on the creation of commercial alliances for the distribution of nets bundled with insecticide kits as well as the introduction of Long-Lasting Net technologies (LLNs). Bilateral donor funds have been committed for an expanded provision of low cost insecticide treatment kits for nets. Procurement and distribution of insecticide kits will be managed by PSI under the scrutiny of the ITN Implementation team and the NATNETS Steering Committee. This third phase of ITN social marketing will provide the principle short-term means of addressing the problem of low insecticide re-treatment rates. Long term, the problem of insecticide re-treatment will be eliminated through the introduction of effective LLN technologies.

Provision of Demand creation will be in partnership with the commercial sector, social marketing organisations and community-based organisations. Persistent behaviour change requires concerted and sustained action at all levels, especially within rural communities, therefore the National Campaign will require support through integrated district, community and household activities that encourage adoption of new ideas.

Equity

Equitable protection of the most physiologically vulnerable groups will be encouraged through the implementation of a targeted ITN Voucher Scheme designed to simultaneously encourage commercial sector participation in ITN distribution and affordability to all pregnant women. Voucher distribution will be linked to utilisation of other essential health intervention packages, such as antenatal and EPI services. Co-ordination with and co-operation from the Reproductive and Child Health Unit and its service providers will be a corner stone in the successful implementation of the ITN Voucher Scheme. Co-ordinated development and planning of training materials for maternal and child health clinic staff has already begun.

The ITN Implementation Team

- Will provide technical support to District Councils and CBOs to enable them to plan effective activities that will increase net usage.

²⁸ Taking Insecticide Treated Materials to National Scale in Tanzania. MoH November 2000.

- Will act as a National ITN resource centre providing information, planning templates and training tools for ITNs activities.
- Will contract and manage the procurement of demand creation activities
- Will have responsibility for:
 - Development, updating and distribution of ITN policy guidelines and malaria planning tools tailored to district decision making
 - Assisting, in collaboration with the Zonal Training Centres, with capacity building based on identified needs, roles and use of ITNs
 - The generation of an enabling environment for demand creation e.g. targeted distribution of ITNs for marginalized groups
 - Overseeing that net manufacturers establish effective systems for delivery of nets and insecticides to customers
 - Coordinating regulatory and quality assurance issues
 - Monitoring and evaluation of the ITN strategy
 - Advocating for enactment of legislation that will require any mosquito net sold in Tanzania to be either; bundled with an insecticide treatment kit or pre-treated using long lasting insecticide technology
 - Development and execution of plans for increasing access to ITNs for Pregnant women through the voucher scheme funded from the GFATM.

To deliver these outputs an increase in the skill base and absorptive capacity of the NMCP is required. Through a combination of donor-funded appointments and MoH transfers or secondments, a Team leader, entomologist, social scientist, fund manager, data manager and team accountant will be recruited to the ITN cell.

(ii) District and Community Level

District Medical Officers will be encouraged and supported by the MoH to take the initial lead to sensitise councillors to the true impact of malaria and the benefits of ITNs. They will then be expected to take a proactive role in advocating, within the District Social Committee, for an integrated cross-sectoral district malaria plan that emphasises the critical importance of ITNs in reducing malaria morbidity and mortality. The CHMT with active support of the Social Committee of the Councils will be responsible for development, implementation and reporting on progress made to implement the MMTSP to the council. A sub committee of the Social Committee that has multi-sector representation will be required. It will handle crucial issues necessary for successful scaling up of ITNs and coordination of the MMTSP in the district.

The sub committee's membership should include influential local people who are in touch with local issues, possessing commercial, advertising, health and malaria control expertise.

DMOs will aim to generate sufficiently high levels of awareness and commitment, within their District Councils and Social Committees, to overcome the past prejudice and apathy related to malaria control. NMCP and the ITN Implementation Team will provide initial support to DMOs during the first year of implementation of the Malaria MTSP. District Councils should appoint a focal person to pioneer ITN interventions and, on an annual basis from 2002 to 2007, include community ITN advocacy and stimulation of private sector involvement in their comprehensive district plans, to ensure necessary budgetary allocations. Advice on locally appropriate advocacy will be available from the ITN implementation Team and marketing partners.

(iii) Research and Monitoring

Insecticide resistance

Insecticide resistance is a threat to long-term control of malaria vectors. Continued long term monitoring of the impact of large-scale use of ITNs on mosquito behaviour and insecticide resistance is essential. The Implementation Team will co-ordinate, where necessary contracting out, appropriate studies to monitor such impact.

Long Lasting Net (LLN) technology

Long lasting insecticide impregnation of materials offers major advantages of cost, convenience, environmental impact and donor engagement. The Implementation Team will, in collaboration with WHO and TPRI, assist and encourage development and adoption of this technology. It will aim to ensure equitable transfer of LLN technology to Tanzania in order to prevent monopoly and enhance local manufacturing capacity.

Market performance

The Tanzania ITN Implementation Plan builds on established partnerships with the private sector, but recognises the need for targeted subsidies. Collaboration with research institutions has been coordinated to:

- Track the continuing development of the commercial market
- Monitor systems of targeting subsidies (e.g. vouchers) for: effectiveness in reaching the target group; sustainability and equity; and the impact on the commercial market.

Monitoring and evaluation

The impact of the ITN component of the MMTSP will be assessed through national malaria monitoring instruments, market surveys and routine demographic and Health Surveillance data. Operational research is being supported through collaboration with national and international research institutions. Integrity of the voucher subsidy scheme and use of GFATM funds will be monitored through independent financial audit commissioned as part of the National Nets Programme.

The Household Budget survey completed in 2001 will provide baseline indicators, alongside the household surveys from SMITN I & II, the 1999 Reproductive and Child Health Survey and existing coverage data from DSS sites, against which to measure trends and monitor progress.

5.2.7 Vector control interventions in urban areas

Vector control interventions in urban areas of sub-Saharan Africa, employing environmental manipulation, have proved difficult to sustain so that in the long term they have been unsuccessful and not cost effective. The recent report of the Commission of Macroeconomics and Health has however emphasised the major economic losses that are inflicted on emerging sub-Saharan economies by malaria. This has prompted a reappraisal of the potential for moderate and large scale endeavours to remove breeding sites for malaria vectors from major urban conurbations.

Rehabilitation of pre-existing drainage systems and extensive land use changes has been suggested for Dar es Salaam. Where the principle strategies for malaria control have been achieved, and where additional revenue can be raised, work on repairing and maintaining pre-existing drainage infrastructure may be a cost effective additional activity that municipal authorities might adopt.

5.3 Strategy 3: Malaria Prevention In Pregnancy

5.3.1 Policy Issues

The MoH recommends that all pregnant women should attend antenatal clinics and receive a full dose of Sulfadoxine / Pyrimethamine (SP), at least twice during the course of their pregnancy. One dose administered during the second trimester and one dose in the third trimester of pregnancy as Intermittent Preventive Treatment (IPT). Pregnant women who are known to be allergic to sulphur drugs should not receive SP for malaria IPT or treatment; oral quinine should be used for treatment of uncomplicated clinical episodes when SP is contraindicated.

The use of ITNs by pregnant women will be strongly encouraged by MCH clinic staff through interactions at antenatal clinics.

5.3.2 Rationale

Pregnant women and under five children are the groups most vulnerable to malaria infection. Pregnancy suppresses some acquired immunity to malaria²⁹. *P.falciparum* infection in pregnancy carries high morbidity and mortality for the foetus and the mother especially during the first and second pregnancy. The sequelae of malaria in pregnancy are principally anaemia and low birth weight. Premature labour, abortion and still-birth are also more common following malaria infection and pregnant women are at higher risk of progressing to severe forms of eh disease. Infant mortality rate is four times higher in low birth weight babies than normal babies so interventions that address low birth weight need to be encouraged³⁰.

Malaria infection during pregnancy is often covert. Research from Malawi³¹ and Kenya³² has shown that pregnant women, living in malaria endemic areas, who receive intermittent treatment doses of SP during their pregnancy enjoy better health and have bigger healthier babies than women from the same areas who have not had intermittent treatment. Providing routine IPT using SP to pregnant women will therefore be expected to improve the outcome of pregnancies in Tanzania.

5.3.3 Current Situation

Communities and health providers are generally not aware of the consequences of malaria in pregnancy in terms of morbidity and mortality. However, they are aware of the availability of malaria preventive measures in pregnancy. There is still low uptake of malaria chemoprophylaxis (29%) and use of ITNs (8%) in pregnancy. Antenatal attendance is high (more than 80%) and guidelines on IPT in pregnancy are available.

²⁹ Rogier C, Tall A, Diagne N *et al.* *Plasmodium falciparum* clinical malaria: lessons from longitudinal studies in Senegal. *Parassitologia* 1999; 41:255-259.

³⁰ Guyatt HL & Snow RW. Malaria in pregnancy as an indirect cause of infant mortality in sub-Saharan Africa. *Trans. Royal Soc. Tropical Medicine & Hygiene.* 2001; 95(6):569-76.

³¹ Verhoef FH, *et al.* An evaluation of the effects of intermittent SP treatment in Pregnancy on parasite clearance and risk of low birth weight in rural Malawi. *Ann. Trop. med. Parasitol* 1997

³² Shulman CE *et al.* Intermittent SP to prevent severe anaemia secondary to malaria in Pregnancy: a randomized placebo controlled trial. *Lancet*, 1999; **353**: 632-636

5.3.4 Target

By 2007 at least 60% of pregnant women will be effectively protected against malaria

5.3.5 Operational targets

- 60% of pregnant women will use IPT as recommended by WHO
- 60% of pregnant women will sleep under an adequately treated mosquito net
- 80% of pregnant women will be aware of the risks / consequences of malaria in pregnancy
- All health providers in MCH clinics will be aware of the risks and consequences of malaria in pregnancy and advise use of IPT and ITNs

5.3.6 Principles for malaria prevention in Pregnancy

Pregnant women will be advised to sleep under Insecticide Treated Nets (ITNs) at night and to take other personal protective measures to reduce contact with mosquitoes. Mothers will be encouraged to protect their infants with Insecticide Treated Nets (ITNs)

The Ministry of Health recommends that all Pregnant women attend antenatal clinics during their pregnancies and advises that, providing that they are not known to be sensitive to sulpha based drugs, all pregnant women, at risk of malaria, should take Sulfadoxine / Pyrimethamine for IPT.

Treatment of malaria in pregnancy will follow the same guidelines as for other patients. As SP is not recommended during the last month of pregnancy oral Quinine will be the treatment of choice from the 36th week up to delivery. Amodiaquine may be used in those facilities where quinine tablets are not available.

In areas of high malaria endemicity, if no other cause for a fever can be identified during pregnancy (for example a respiratory infection or a urinary tract infection), a woman who is pregnant and febrile will be assumed to have malaria. She will receive a treatment dose of SP (3 tablets) without delay. It should be noted that malaria parasites may be sequestered in the placenta so that blood smears can be reported as negative despite infection.

5.3.7 Interventions to increase protection in pregnancy

(i) National Level

The National Malaria Control Programme, in collaboration with the Reproductive and Child Health Unit of the Ministry of Health, will facilitate the necessary activities to support this strategy for IPT and ITNs. They will provide updated guidelines and secure, where necessary, resources to train staff to deliver IPT, recognise and treat anaemia and malaria in pregnancy and distribute ITN vouchers. The RCHU will oversee the service delivery of case management and preventive measures for malaria in pregnancy at all levels of care in public, private and NGO facilities.

Training on malaria case management and the use of IPT, tailored to needs of health providers at health facility level, will be essentially a responsibility of CHMTs. They will

be encouraged to allocate resources for training and seek assistance to train their MCH clinic staff on new interventions.

Provision is made in the 2002 – 2003 MTEF for Government funds to procure sufficient SP for all pregnant women to be provided with free SP IPT. Delivery of free IPT through government run MCH clinics will be relatively straight forward, using existing distribution mechanisms to ensure availability and audit. Delivery of malaria services for the large number of women who receive their antenatal care at NGO or private clinics, however, will require diligence and commitment from CHMTs and DMOs if targets are to be met.

The National Malaria Control Programme, in collaboration with regional staff and other relevant divisions / sections in the MoH, such as the Health Education unit, and other stakeholders, will promote IPT and ITN usage among pregnant women. They will also co-ordinate monitoring and evaluation and undertake operational research, in collaboration with the regions and districts, to optimise service delivery.

All pregnant women will be entitled to a subsidy, in the form of a voucher, towards the cost of an ITN. Vouchers will be issued, through antenatal clinics, early in pregnancy. They will be redeemable, at a commercial retailer, against part of the purchase price of an ITN. Qualification for a voucher will be linked to uptake of essential health interventions related to pregnancy.

(ii) Regions

The regional authorities act as an extended arm of the MOH. They will assist the national level to deliver activities assigned for the central level. They will in addition provide technical support to districts and monitor progress made during implementation.

(iii) District and Health Facility Levels

The district and Health facility levels will incorporate IPT and ITNs strategies in their comprehensive health plans and budget each year. They will be responsible for the implementation of IPT and ITNs interventions and oversee that IPT and ITN voucher delivery is integrated with other antenatal services within the district. CHMTs will distribute and audit use of SP for IPT and ITN vouchers against the antenatal returns from health facilities. CHMTs will also be responsible, using health sector basket funds, for the training of health facility staff and communities on IPT and ITNs. CHMTs will undertake supportive supervision, monitoring and evaluation. They will order and distribute necessary anti-malarial drugs and medical supplies to all health facilities. Sensitisation and advocacy for IPT and the use of ITNs will provide a key entry point for CHMT staff working with communities and non-governmental suppliers of essential health interventions. The need for pregnant women to seek prompt treatment when they have fever or malaria should also form a focus for messages delivered to communities through integrated district health education initiatives.

(iv) Community Level

Key community people, extension workers (including village health workers), village advocates and opinion leaders, including faith based group leaders, should be actively recruited by CHMTs to sensitisation and support pregnant women and encourage rights based access to IPT and ITNs. Pregnant women will require education on the need to attend ANCs, including the benefits associated with health interventions provided during pregnancy for the mother and child; including immunization, micronutrients and attended deliveries.

Through the appointment, and remuneration by the district, of malaria coordinators CHMTs will be ideally placed to gain community trust and encourage the involvement and participation of communities. Through ward and village representatives men and husbands may also be encouraged to support their pregnant wives to seek antenatal care and IPT and to support their wives' use of ITNs.

5.4. Strategy 4: Malaria Epidemics Prevention and Control

5.4.1 Policy Issues

The evolution of emerging and re-emerging diseases has put renewed pressure on health service delivery in the country. In response to the threat of epidemics, through training, re-tooling and improvements in infrastructure the MoH is strengthening its emergency preparedness capability. Instruments for multi-sectoral collaboration in the event of an epidemic have also been established.

5.4.2 Rationale

A malaria epidemic is defined as the occurrence of new cases of a disease clearly exceeding the number expected at that particular time and place. Generally there is an inverse relationship between the usual intensity of malaria transmission and the risk of epidemics. Unstable malaria transmission areas, often fringe highlands and semi arid zones, are prone to malaria epidemics. Factors associated with unexpected increases in malaria transmission may be man-made (environmental modification) or natural (climatic). Furthermore, population movements (refugees) and deterioration of health care services may contribute to the appearance of malaria epidemics.

High morbidity and mortality usually occurs during an epidemic. Early detection and immediate intervention with appropriate control measures can limit and contain the worst effects of an outbreak of malaria in an epidemic prone area.

Retrospective epidemiological information is required if potential epidemics are to be detected before they become established. The pattern of disease to be expected in a given area can be established from existing clinic and hospital data. Subsequently, if an unusual increase in the number of new cases is observed the possibility of an epidemic should be considered, the event notified and investigations started. If an epidemic is recognized, predetermined emergency measures, such as mass drug administration, may then be initiated. Other interventions to be considered should focus on the reduction of transmission through vector control measures.

Routine meteorological data collection that would detect, for example, unusually heavy rainfall or high temperatures in highland areas, can also provide an early warning for the prediction of malaria epidemics. On a longer time scale, long-range weather forecasts may also be useful, especially at national level, by providing advanced warnings of global climatic phenomena (e.g. *el niño*) that could affect local temperatures and rainfall.

5.4.3 Current Situation / background

Up to 25% of Tanzanians live in Malaria epidemic prone areas. Of these a third live in fringe highlands and the Rift Valley, while two thirds live in Semi arid districts. Ten districts have reported epidemics that occurred within their boundaries. Malaria epidemics have also been reported in refugee camps in north west of the country. In epidemics have been associated with high morbidity and mortality as well as the disruption of the social and economic infrastructure of affected communities. Epidemics have occurred in three to four year cycles in several of the affected districts. Additionally there are districts where malaria epidemics might have been expected but from which records are not available or report have not been made.

In the last 10 years malaria epidemics, when they have occurred, have always caught authorities and communities unaware. No prediction or detection mechanisms have been in place to provide warnings. Implementation of the strategy on epidemic control

will lead to the prevention, and containment of outbreaks in epidemic prone areas. Enhanced early warning, early detection and preparedness are the keys to success.

5.4.4 Target

By the year 2007 all epidemic prone districts will have increased their capacity to detect malaria epidemics early and contain them.

Two approaches will be applied under this strategy:

- (a) Establish early warning and detection systems in malaria epidemic prone districts.
- (b) Establish adequate prevention and control responses to malaria outbreaks in epidemic prone districts

5.4.5 Operational targets

- A mechanism for collaboration with partners on early warning and epidemic control will be established at all levels, particularly at district level
- Key medical personnel in epidemic prone districts will have undergone training for early detection and control of epidemics
- All epidemic prone districts will have adopted an instrument for the early detection and reporting of unusual rises in the numbers of malaria cases
- All epidemic prone districts will have contingency stocks of essential equipment and supplies for the prevention and rapid containment of malaria outbreaks.
- In the event of an epidemic, districts will have the capacity to deliver effective control measures, such as mass drug treatment.

5.4.6 Interventions

The following interventions are required:

(i) National level:

The NMCP in collaboration with stakeholders will:

- Collect retrospective epidemiological data in all epidemic prone districts to establish district malaria profiles and define the thresholds at which district action plans will be triggered.
- Work with epidemic prone districts and regions to develop plans for epidemic control.
- Develop guidelines on malaria epidemic preparedness
- Develop guidelines for the management of severe malaria in emergency situations.
- Liaise with the Tanzania Meteorological Agency to establish an early warning system.
- Facilitate networking, within and outside the country, between districts prone to epidemics to enable them to learn from each other's experiences in epidemic control.
- Promote studies on associated contributing factors to malaria epidemics such as ecological, socio-economic and political changes.

- Work with MSD to assist districts to procure and distribute essential drugs, medical equipment (spray pumps, diagnostics kits, insecticides, protective gear and spare parts) and logistic support to epidemic prone districts
- Liase within the MoH to facilitate the integration of Malaria surveillance systems into the integrated disease surveillance system of the MOH
- By June 2003, develop with TPRI a policy and recommendations on the use of insecticides, including DDT, for epidemic control. The policy will define, for implementing districts, the types of responses and insecticides that are considered appropriate in specific circumstances. A 'menu' of options and responses will provide technical and practical solutions for CHMTs to apply as required.

(ii) District Level Interventions

All epidemic prone districts will prepare a plan for epidemic prevention and control within their comprehensive district health plans. They will solicit resources for implementation with RBM partners. Plans should include the establishment of an early detection system for malaria epidemics in selected sites and a contingency stock of drugs, spray equipment and insecticides. Sensitisation and mobilization of all RBM partners in malaria epidemic prevention should be considered.

The CHMTs in collaboration with stakeholders and RBM partners at district level:

- Will facilitate and activate key actors at community level to prevent, control and contain malaria epidemics.
- Will sensitise the community on how to identify malaria and take appropriate actions
- Will provide capacity building to health staff in epidemic prone areas

(iii) Community Level Interventions

Ward executive committee, village council, community-based organizations, community owned resource persons, village health committees and individuals will be encouraged to participate in activities designed to assist in the capture and reporting of increases in malaria case numbers. As epidemics are detected, Village Health Committees will be called upon to assist in the delivery of specified control interventions.

Chapter Six: Supportive and complimentary strategies

6.1 Operational research

6.1.1 Implementation Approaches

The NMCP will identify priority research topics for submission to the National Essential Health Research Forum under the National Institute for Medical Research (NIMR). In collaboration with partners NIMR will then develop and resource proposals, implement the required studies and feedback result in a timely manner to NMCP. NMCP will use evidence gathered by collaborators to inform policy decisions and implementation practice. The NMCP will, from time to time, contract out specific pieces of researches where there is an information gap or lack capacity within NMCP and her collaborators.

6.1.2 Policy Issues

The government of Tanzania is committed to undertake health research in order to provide a strong evidence base to improve decision-making and health care delivery.

Decisions at MoH and district levels are often not based on evidence of disease burden or cost effectiveness of interventions. Research capacity is lacking in the health sector and much research carried out in the country at present does not address the diseases that inflict the highest morbidity and mortality. For malaria, there are also significant geographical lacunae of information.

The MoH plans to address malaria operational research through:

- Strengthening the MoH research unit
- Co-ordination of action oriented research (Health System Research)
- Formulation of a research policy and guidelines
- Modernisation of compilation, analysis, storage and retrieval of health research data
- Networking with research institutions and individual researchers
- Establishing a research budget line
- Inclusion of action oriented research in curricula of basic medical science courses.

6.1.3 Current Situation

- Capacity to undertake research is present but individual researchers require supervision and mentoring, while institutions require co-ordination and focus
- Financial resources are limited
- There is willingness from partners to finance research on malaria
- Substantial pieces of research have been undertaken in the country and some findings have assisted the MoH in policy definition
- Research findings are often under utilised for decision making and the translation of research into practice is often slow and cumbersome
- Sharing of research findings is not well coordinated

6.1.4 Target

By the year 2007, decision-making and policy formulation for malaria control activities will be evidence based

6.1.5 Operational Targets

By the year 2007, 60% of the priority research topics will be under investigation and evidence will be used to improve control activities.

6.1.6 Interventions

NMCP in collaboration with stakeholders and RBM partners:

- Will provide national level co-ordination for malaria research
- Will establish a Malaria Resource Centre and Malaria Research Database
- Will promote dissemination of findings through existing channels (newsletters, editorial initiatives, journal publications, training activities) and develop new opportunities to influence national practice through an annual IMCI / Malaria conference
- Will relocate its offices to a shared building with NIMR, the Gates Malaria Programme and the Centre for the Enhancement of Effective Malaria Interventions (CEEMI)
- Will establish a 'research into practice' post within NMCP to enhance dialogue and connectivity between NMCP and the research and training communities

6.1.7 Roles and responsibilities at different levels

(i) National Essential Health Research Forum and NMCP

- To identify priority research areas

(ii) District and communities

- To identify specific problem oriented malaria research needs
- To identify appropriate partners to conduct operational research
- Communities should be encouraged to assume a proactive role in identifying research needs and seek feed-back from researchers
- Communities should be actively involved with, and participate in, the conduct of research

(iii) Research Institutions

- To identify and undertake relevant malaria research
- To assist community, council and institutional proposal writing
- To solicit and manage funds
- To build research capacity and provide mentoring for young researchers
- To disseminate research findings to stakeholders
- To ensure that the quality and repute of research in the country is maintained.

6.1.8 Research Priorities

Case management

- Efficacy of anti-malarial drugs for the treatment of uncomplicated and complicated malaria
- Assessment of combination therapy drug options; effectiveness and operational issues
- Efficacy of anti-malarial drugs for prophylaxis in sickle cell disease patients
- Safety of SP use in large scale implementation
- Assessment of Socio-behavioural issues related to drug use
- Strategies to enhance home management of malaria
- Role of the informal sector in enhancing correct early malaria treatment
- Assessment of intermittent preventive treatment in infants

Malaria in Pregnancy

- Efficacy of drug options for Intermittent preventive treatment in pregnancy
- Interaction between anti-malarial treatment (preventive and curative) and HIV infection in pregnant women and infants, including safety and dosing requirements

Vector Control

- Testing of the efficacy of new products, including long-lasting ITNs
- Mapping of the prevalence and distribution of malaria vectors
- Monitoring of insecticide resistance
- Mapping of transmission intensity and its relation to changes in reported morbidity and mortality
- Strategies for improving uptake of ITNs.
- Costs, willingness and ability to pay for ITNs.
- Epidemic preparedness and control interventions
- Assessment of determinants of malaria epidemics

Monitoring and Evaluation

- Assessment of the process of implementation and impact of the new anti-malarial treatment policy (SP first line)
- Monitoring of the MTSP malaria control activities and evaluation of impact using core RBM indicators to track progress
- Definition of the social and economic impact of malaria in Tanzania

Other Research Topics

- Evaluation of IEC strategies promoting malaria control activities at all level.
- Evaluation of methods to enhance malaria control financing at district and household levels.
- Assessment of household expenditure on malaria control
- Evaluation of strategies for financing the delivery of malaria control interventions including those for ITN delivery to economically vulnerable groups and 'revolving fund' mechanisms for drugs and ITNs
- Evaluation of other (non financing) strategies to improve the delivery of malaria control interventions (Anti-malarials and ITNs) to economically vulnerable groups
- Definition of the Health System requirements for effective malaria control activities at District Level in the frame of the Health Sector Reform process.

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6.2 Communication Strategy

The National Malaria Control Programme will prioritise the establishment of an Information Cell within the programme. The Cell leader will be responsible to the programme manager for the information services of the programme.

6.2.1 Policy issues.

The Government recognises that advocacy and information for behaviour change are fundamental to improvement of the health status of the people. It will promote positive health behaviours and social change, at all levels, focusing particularly on the individual, family and community.

The MoH will intensify communication efforts through increased information for behaviour change, political support, and collaboration with other partners to ensure that all Tanzanians have access to accurate malaria control information.

6.2.2 Rationale

Information needs cut across all of the strategies detailed in the MMTSP. Traditional beliefs and taboos that impede effective use of health facilities, drugs and protective technologies delay improvements in the health of the nation and compound the burden of infectious diseases in poor communities. Effective IEC, available to everyone, is therefore required if individuals are to start making choices that will result in better health and increased overall demand for effective services.

6.2.3 Current situation

- Large sections of the population, particularly in rural areas, have no access to information
- Most village health workers are not meeting householder's needs
- A Health Education Unit (HEU) and other institutions exist for the development and production of IEC materials
- Communication media particularly electronic and print are available in the country
- Partners are ready to support IEC
- The Government wishes to strengthen the Ministry of Health HEU
- There are limited resources at all levels to develop and disseminate IEC materials on malaria
- NMCP has demonstrated its capacity to elaborate, design, edit and publish appealing and effective IEC and training materials
- A School Health Programme is well established throughout the Country with Regional and District Coordinators.
- National Malaria Day is commemorated

6.2.4 Target

The impact of communication strategies is difficult to measure therefore proxy impact indicators from the other strategies that rely on knowledge acquisition will be measured.

By the year 2007 at least 60% of the children under 5 years of age and 60% of pregnant women will be sleeping under an insecticide treated mosquito net

By the year 2007 60% of children under five years of age with febrile episodes will receive appropriate treatment within 24 hours of onset

6.2.5 Operational targets

- By July 2003 a strategy for Malaria Information for Behaviour Change is implemented
- By 2007 80% of households nationwide will have received messages every six months from at least one source to support the key MMTSP strategies on management of fevers, ITNs and the use of IPT in pregnancy.
- By 2007 at least 80% of formal health staff (Public, Mission and NGO and Private) will have received updates and continuing education on malaria control initiatives.

6.2.6 Interventions

Four approaches will be used to increase communication effectiveness:

- Establishment of an IEC / editorial cell (unit) within the NMCP
- Establishment of partnerships at community and district level with groups able to support local IEC initiatives, especially Faith Based Organisations, school based associations, youth groups and CBOs.
- Establishment of partnerships across sectors and institutions to harness the many skills and resources available to develop and disseminate IEC on malaria prevention and control
- All IEC on malaria control will be focused on the strategies identified within the MTSP

The interventions to be applied at various levels are as follows:

(i) National level:

NMCP through its information cell will form partnerships and collaborate with stakeholders to:

- Develop a communication strategy for malaria
- Develop and disseminate guidelines and materials on communication techniques for malaria control for all levels
- Provide advocacy for malaria interventions to MOH, inter-sectoral ministries, members of parliament, development partners and the media
- Undertake and facilitate development of generic IEC materials for all levels with initial emphasis on targeting school children
- Commemorate National Malaria Day each year (25th April).

- Translate tools, already used in pilot districts, identifying entry points for communities, for wider adoption by interested partners.

Sponsorship

Sponsorship for malaria events and activities from companies and corporations has already helped to raise awareness about malaria in Tanzania. The Information Cell will encourage public-private partnerships to increase the flow of resources available for advocacy through, for example, radio and television slots, sports events, entertainment and printed materials.

Resource centre

Establishing a malaria resource centre, to include a collection of posters, leaflets, magazines, photos, videos, news articles and journals, is a priority for the NMCP. The National Malaria Resource Centre will be realised when the NMCP relocates to new offices in central Dar-es-Salaam. In the short term IEC materials and information will be made available in CD-ROM format and hosted on partner's websites^{33 34}.

(ii) District level

CHMTs will invest in efforts, with stakeholders, to:

- Facilitate and procure training for staff on the effective delivery of IEC for malaria to communities
- Develop and disseminate locally appropriate materials and information for malaria related behaviour change
- Sensitise school children on malaria control interventions
- Plan for and encourage people at the community level to participate in the dissemination of information for behaviour change related to malaria.

(iii) Community level

Individuals and community leaders from: Divisions, ward executive committees, village government, faith based organisations, community based organisations and village health committees will be encouraged, by CHMTs, to take an active role in creating awareness about malaria and the available control interventions in their respective constituencies. Messages, focusing on the three core strategies for control, should aim to promote positive behaviours towards malaria control among community members and households. They will be assisted through the dissemination of the community entry tools produced by NMCP.

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³³ Current 'flash' malaria cartoons are hosted on www.atticmedia.com/imfundo/

³⁴ EANMAT data is available at www.eanmat.org

6.3 Monitoring and Evaluation of the Malaria MTSP

6.3.1 Policy Issues

The MoH has established a task force to monitor overall Health sector performance. An annual review, preceded by specific detailed technical reviews, is carried out annually by funding partners and the government.

A guideline to be used to monitor implementation progress at all levels during supervision visits exists. The inspectorate unit from the Office of the Chief Medical Officer is responsible for the co-ordination of integrated monitoring of health sector performance. The existing MoH systems to monitor health sector performance will be used to monitor the malaria MTSP. In addition the National Malaria Control Programme with funding from WHO will establish a network of researchers and national officers to undertake detailed monitoring of process related inputs and outputs and evaluation of the impact of the MTSP.

6.3.2 Data Sources

Malaria data will be obtained from:

- Routine information systems: the Health Management Information System (HMIS), special initiatives (AMMP, TEHIP, Integrated Disease Surveillance Response (IDSR), Demographic Surveillance Systems (DSS), NSS
- Routine population surveys conducted by the National Bureau for Statistics: Reproductive and Child Health Surveys, Household Budget Surveys
- Research groups: NIMR, MUCHS, IHRDC, KCMC/MRC and EANMAT
- Meteorological agencies
- Supervision reports
- Health facility surveys of routine case management
- Community surveys
- Document reviews
- Other reports e.g. SMARTNETS project reports, IEC impact surveys etc.
- Follow up after training
- A mid term evaluation report scheduled for 2004/5
- A final evaluation scheduled for mid 2007

6.3.3 Requirements for Effective Malaria Monitoring and Evaluation

Many sources of malaria data are available but a number of constraints remain that threaten the acquisition of robust and reliable data.

- HMIS and IDS may not be reliable
- DSS is expensive and currently probably not representative of all areas
- There is inadequate collaboration between NMCP and key partners
- There is no malaria database at the NMCP

To address these deficiencies and improve systems for monitoring and evaluation the NMCP will:

- Establish an epidemiology cell (unit) within the NMCP headed by a senior professional responsible for epidemiological research, monitoring and evaluation.
- Establish and maintain a national malaria database as an integral part of the NMCP resource centre
- Co-ordinate a collaborative network of researchers, data collection projects and sentinel survey sites.

- Work with sentinel site investigators to monitor trends towards the achievement of key indicators.
- Contract out specific reviews, facility-level and community based surveys.
- Where it can achieve added value from Nationally planned surveys; pay for over-sampling in key districts in order to increase sample sizes.
- Where necessary procure training on data management and GIS platforms for national and district staff.

6.3.4 Monitoring Indicators

Monitoring will measure progress made towards outputs and the process of implementation. The epidemiology cell of NMCP supported by the monitoring Network will develop survey tools and coordination mechanisms. The timing and frequency of the surveys will be determined as part of the establishment of the monitoring network.

Comprehensive monitoring will require the time of many players and significant financial resources. WHO, from the country budget for malaria, will meet the initial network expenses and pay for district data gatherers to harvest routine data. The 2001 Situation Analysis will be repeated in 2005.

A minimum set of core indicators will be monitored ³⁵ through: Household/community survey (▲); facility-level/district survey (■); reviews (*).

Case Management (Early diagnosis and Treatment) at community level

- Proportion of children under five years of age with fever / malaria, within the previous two weeks, getting correct treatment according to National Treatment Guidelines within 24 hours of fever onset (▲)
- Proportion of drug stores, retail shops and kiosks selling only quality assured anti-malarial drugs according to the National Treatment Guidelines (▲)
- Proportion of informal sector service providers (shopkeepers, traditional healers) that are offering anti-malarial treatment according to the National Treatment Guidelines (▲)

Improved malaria diagnosis and case management at health facilities

- Proportion of children, under five years of age, presenting at a health facility, with uncomplicated malaria managed according to the National Malaria Treatment Guidelines (■)
- Proportion of cases diagnosed as severe malaria managed according to the National Malaria Treatment Guidelines (■)
- Proportion of health facilities able to confirm malaria diagnosis according to the National Malaria Treatment Guidelines (■)
- Proportion of health facilities reporting no disruption of stocks of required anti-malarial drugs for more than seven days during the previous three months (■)

³⁵ Indicators and operational definitions derived from: Framework for Monitoring Progress and Evaluating Outcomes and Impact. RBM. WHO/CDS/RBM/2000.25. Geneva.

Insecticide Treated Mosquito nets (ITN)

- Proportion of children under five years sleeping under an ITN, treated within the last twelve months or a Long Lasting Net (LLN), on the preceding night (▲)
- Proportion of pregnant women sleeping under an ITN, treated within the last twelve months or a Long Lasting Net (LLN), on the preceding night (▲)
- Proportion of pregnant women aware of the importance of sleeping under a regularly treated net (▲)
- Proportion of hamlets having at least one outlet selling ITN commodities (▲)
- Proportion of households having at least one ITN (▲)

Malaria in Pregnancy

- Proportion of pregnant women who have taken IPT according to the National Malaria Treatment Guidelines (▲)(■)

Epidemic Prevention and Control

- Proportion of epidemic prone districts having a functional system for early detection of epidemics (*)
- Proportion of malaria epidemics detected within 2 weeks of onset and properly controlled (*)
- Number of epidemic sentinel sites regularly reporting on malaria situation (*)
- Proportion of epidemic prone districts that have stocks of supplies and equipment for epidemic control (■)(*)
- Proportion of epidemic prone districts with personnel who can analyse, interpret and manage data related to epidemic preparedness and control (■)

Health Sector Development

- Proportion of districts with comprehensive district health plans that are consistent with the MMTSP (*)
- Proportion of districts using locally collected data for planning of health services (*) (■)
- Proportion of districts that have a focal person for malaria control activities within CHMT (■)
- Proportion of CHMTs, ZTCs, RHMTs, NGOs and donors receiving and using NMCP guidelines, policy papers and newsletters (*)

Information, Education and communication

- Proportion of mothers/caretakers able to recognise the danger signs and symptoms of febrile disease in a child under five years of age (■)
- Proportion of antenatal clinic staff trained on IPT and ITNs for pregnant women (■)
- Proportion of wards with at least one person trained on 'community based malaria control' (▲)

6.3.5 Impact Indicators

The impact of the MMTSP on the malaria burden will be measured through routine HMIS data and a combination of special surveys. The DSS coverage in Tanzania is unique and will provide high quality data that will be supplemented by biannual health facility and community surveys, commissioned by NMCP, and DHS surveys conducted by the National Bureau of Statistics.

Impact Indicators

- Crude death rate among target groups
- Malaria death rate (probable and confirmed) among target groups
- Percent of probable and confirmed malaria deaths among patients with severe malaria admitted to a health facility (by age group)
- Number of cases of severe malaria (probable and confirmed) among target groups
- Number of cases of uncomplicated malaria (probable and confirmed) among target groups.
- Proportion of OPD cases attributable to malaria
- Proportion of IPD cases attributable to malaria
- Morbidity attributed to malaria among children under five years of age

Chapter Seven: Implementation arrangements

7.1 Institutional Framework

Implementation of the five-year malaria MTSP will be in line with Health Sector and Local Government reforms. Core funding of the activities will be provided through the Sector Wide Approach to funding (SWAP), agreed between the Ministry of Health and donor agencies contributing to the Health Sector basket funds, against the annual MTEF.

The Ministry of Health organisational structure comprises the Minister for Health, the Deputy Minister for Health, the Permanent Secretary and the Chief Medical Officer with six directorates. The directorates are for: Preventive Services, Hospital Services, Human Resources, Policy and Planning, Administration and Personnel and Accounts and Finance. Government owned Health services at regional and district levels are administered through the President's Office for Regional Administration and Local Government.

7.1.1 Mechanisms for coordination and communication

(i) National Level

The National Malaria Control Programme Manager is responsible for implementation and coordination of the MMTSP. He is answerable to the Director of Preventive Services, through the head of the Epidemiology and Disease Surveillance Unit, for the provision of the programme outputs.

The following committees and subcommittees will assist the NMCP and advise the Ministry of Health on implementation of the MMTSP:

National Malaria Advisory Committee (NMAC)

The committee membership includes all key ministries, Development Partners, representatives from the private sector, research institutions, NGOs and voluntary agencies. It functions as the advisory body to MOH on malaria matters and as such the composition and Terms of Reference have been stipulated by the MOH. The Director General of NIMR chairs the committee; NMCP provides the Secretariat. The committee will meet twice a year.

Malaria technical sub-committees and task forces

Malaria technical committees are mandated by the NMAC. Currently three technical committees exist: (a) Case Management sub-committee (b) Vector Control sub-committee and (c) IEC sub-committee. They will meet regularly or at any time deemed necessary by the NMAC. Specific task forces support the technical committees for particular matters.

Inter Agency Malaria Coordinating Committee (IAMCC)

In 2002 The NMAC advised that an IAMCC be established. It will be composed of RBM partners and coordinated by MoH. The committee will be responsible for addressing issues of planning, monitoring, evaluation and funding linkages. The committee will meet three times a year.

Annual malaria conference

A malaria/IMCI conference will be held each year to promote malaria awareness prior to the district planning cycle. The conference will provide a forum where MoH/NMCP, regions, districts and other stakeholders will share information on progress towards implementation of respective malaria plans, steps being taken to address problems that have been encountered and the way forward.

ITN conference

A biannual ITN conference will draw participants from within and outside the country to share information on ITN implementation.

(ii) Regional Level

The Regional Medical Officer / Health specialist will be responsible for technical support to the districts, assisted by the District Focal person. The RMO / Health Specialist is answerable to the RAS.

(iii) District Level

The DMO will be responsible for co-ordination and delivery of the health service components required at district level to achieve the MTSP targets. The DMO is answerable to the District Executive Director. The CHMT will be expected to appoint a district focal person to oversee the district planning for and supervision of community malaria prevention and control activities. The Focal person will provide the principle point of contact for malaria within the district.

Various bodies within the district offer opportunities for malaria advocacy and co-ordination.

Full council (FC)

The FC is the main actor at district level for mobilization of manpower and resources for malaria control. It should ensure that targets and budgetary allocations reflect the burden of malaria disease within the district and monitor the progress being made to reach the targets set in the annual Comprehensive District Health Plan (CDHP). Advocacy for evidence based action to control malaria from this level of the civil authority is crucial.

District Health Board (DHB)

The DHB is answerable to the FC for the allocation of manpower and the use of health resources in the district. It has the specific task of identifying priority spending areas and managing health service provision within the district. It should provide malaria advocacy to the FC and oversee implementation of the CDHP. Where CDHP implementation problems arise the DHB should find solutions. With devolution of authority from Central to District Government the oversight capacity of the DHB has become key to the targeting of resources to match burden of disease.

District PHC Committee

The 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.

CHMT

The CHMT, chaired by the DMO, is the technical body at district level and will deal with all MMTSP implementation details including advocacy and resource mobilisation for malaria control. It will be responsible for the support of health facilities and communities in the implementation of malaria control activities. The CHMT is responsible for supervision, monitoring and evaluation of the Health Plan in the district.

(iv) Community Level

Village councils, PHC committees and ward development committees are the institutions responsible for implementation of community based malaria control activities. They should co-ordinate, with the technical assistance of the local health staff, the different actors involved in the delivery of interventions at household level: development projects, CORPs, TBAs, opinion leaders, leaders of Faith Based Organisations, extension workers, teachers, and private providers of drugs and ITN commodities.

7.2 NMCP capacity to manage, administer and implement the MMTSP

7.2.1 Current status

Malaria is the number one killer in the country, but it does not enjoy a high enough profile to attract sufficient resources and high-level political support. The NMCP is under staffed, lacking the necessary skill mix and administrative support to deliver the outputs required of it in order to have a major impact on malaria morbidity and mortality. Significant new resources have been secured for malaria control but without a critical mass of skilled and committed professional staff within the NMCP delivery of the MTSP will be compromised.

7.2.2 Strengthening NMCP capacity

A strengthened NMCP is required to deliver this plan and meet the demand from central government and districts for action in planning, budgeting, capacity building, monitoring and evaluation.

In the future, activities undertaken by the NMCP will be managed under teams (cells) with responsibility for; Clinical Management, Vector Control, Communications and district training support, Operational Research, Epidemiology and Administration. An overarching emphasis on control at community level is paramount so NMCP will contribute to the district and community based workload through interim training support to Regions and Districts. This will require targeted resources and management capacity.

A malaria reference laboratory to support MoH efforts in laboratory quality assurance will be planned for. Regulatory participation will be limited to defining parameters for performance of quality, defining best practice through guideline production and coordinating activities conducted by other players principally the Diagnostic Services Section.

An enhanced establishment with defined roles and responsibilities will ensure the levels of collaboration and co-ordination with other units and programmes required for moving the Malaria agenda forward. Despite the Civil Service mandate to reduce size of

government units this degree of expansion is required for Tanzania to be in a position to absorb the resources that the global community are starting to commit to malaria.

Senior level professional skills related to disease epidemiology, programme management, communication, disease surveillance, medical statistics, health economics and entomology are needed to enhance NMCP performance.

7.3 Roles and responsibilities for MMTSP implementation

7.3.1 Community level

- Malaria community based interventions will be integrated with other relevant programmes such as IMCI, PHAST, MCH etc.
- Community owned resource persons including village health workers will support promotion of effective malaria control activities
- Village PHC committees will co-ordinate effective community based malaria control measures and will, supported by the district malaria co-ordinator sensitise communities through health education and promotion activities
- Ward Development Committees and Village Councils in collaboration with health facilities staff will support CORPs to promote the use of ITNs and educate people on early case management
- Ward Education Coordinators, teachers and village school committees will promote malaria awareness in schools.
- Collection and analysis of basic data from households, on births and deaths, will provide the lowest level information for monitoring progress.

7.3.2 Health facilities

The staff at health facilities will ensure that quality health care is provided through improved management/treatment skills, constant availability of drugs/medical supplies, diagnostic supplies and improved attitudes towards patients. They will also advocate and provide IEC to communities on malaria prevention and control and support CORPs in the hamlets. The health facility staff will contribute towards strengthening of the referral system by referring patients on time with accurate reports. They will also monitor malaria activities interventions in the surrounding villages

7.3.3 Council (District) level

Council Health Management Team (CHMT)

CHMTs are now responsible for planning expenditure and budgeting for activities. As malaria is a priority disease it is expected that Councils will increase the budgetary allocations available for appropriate, evidence based, malaria interventions so that spending more closely matches the burden of disease. Such increases are possible because extra resources are available for priority health interventions through the donor SWAP funding mechanism.

The CHMT will provide support and supervision to health facility staff and VHWs who deliver health care services. They will train shopkeepers and private health care providers on malarial treatment and the use of ITNs. The CHMT will disseminate malaria prevention and control guidelines to all care providers including traditional healers. In collaboration with district education officers and teachers, CHMTs will lead programmes that engage children in malaria initiatives to increase ITN use and early treatment of

fevers. They will implement, as a priority, the community component of IMCI, and collaborate with private sector providers, NGOs and other partners at community level, to ensure access to affordable quality malaria treatment. CHMTs will manage data collection from health facilities, including taking appropriate action to monitor progress made to implement community strategies.

Functions of the CHMT will be as follows:

- Preparation of comprehensive health plans that include priority malaria interventions as stipulated in the malaria MTSP
- Dissemination of guidelines for prevention and management of malaria to both the public and private sectors
- Enhance skills for clinical case management, diagnosis and treatment in health facilities, use of ITNs and malaria prevention, through training and supervision
- Ensure implementation of IMCI in all health facilities
- Ensure improved delivery of laboratory services
- Support the referral system for management of severe malaria
- Ensure availability of safe blood transfusion services at district referral centres
- Ensure availability of quality malaria treatment drugs in all health facilities and promote their rational use
- Facilitate the monitoring of anti-malarial drugs
- Advocate for vacant posts for qualified staff at health facilities to be filled
- Promote collaboration with other sectors and partners on malaria control activities.
- Use the existing epidemiological surveillance and HMIS data for planning, monitoring and evaluation of malaria control activities
- Establish a district malaria database and review regularly malaria data from HMIS and IDSR

7.3.4 Region

Regional Health specialists will not be involved in service delivery. They will support District health staff the councils with technical advice and supervision and where necessary contribute to formal training programmes. Their role is to enable and facilitate the implementation of priority health strategies and interventions.

The Regional Health Specialist will:

- Provide technical malaria support to CHMTs during preparation of Council Comprehensive Health Plans
- Encourage evidence based, burden of disease prioritised planning
- Build capacity within CHMTs through problem oriented learning
- Guide CHMTs through the implementation of national guidelines, policies and strategic plans
- Provide supportive supervision and monitor efforts made by councils to attain NMMTSP targets
- Collate regional malaria data and monitor regional malaria trends
- Provide evidence based advice to councils on control of malaria epidemics
- Maintain an active dialogue with NMCP officers so that response time to new information is minimised.
- Undertake operational research in collaboration with the national officers.

7.3.5 National level

The Director of Preventive Services at the MoH will facilitate processes that require the involvement of different departments within the Ministry of health and development partners.

The NMCP manager will be responsible for the implementation of the MMTSP and will ensure compliance to the principles of Health Sector Reforms and decentralisation of health services planning and spending authority to the districts (Councils). The NMCP will work with CHMTs to accelerate the implementation of the Ministry's MMTSP.

The NMCP will be responsible for the:

- Advocacy for malaria control activities at all levels.
- Provision of effective tools for CHMT planning, monitoring and evaluation of malaria control activities
- Establishment of a national malaria database and a regular review of malaria data from HMIS and IDSR
- Preparation and revision of Malaria Control Guidelines
- Provision of supportive supervision and performance monitoring of CHMTs
- Coordination of work with the IMCI Unit of the Ministry of Health to improve malaria case management for children under five years of age
- Production of training modules, teaching and reference materials and training resources for health workers.
- Enhancement of malaria epidemiological surveillance systems and HIMS.
- Provision of technical assistance on improving capacity at district level on malaria control interventions.
- Promotion of the Zonal Health Training institutions as centres of excellence from which CHMTs can reliably obtain training for their health staff.
- Management and audit of service agreements and contracts required to achieve the MMTSP outputs
- Dialogue with the Human Resource Department of the Ministry of Health and partner training institutions to ensure that pre-service and in-service curricula for health training are consistent with the national malaria control strategies.

7.4 Partnerships

Effective partnership and coordination of effort at all levels is required for the successful implementation of this MMTSP. Partners who will be able to contribute directly to the outputs are listed below.

7.4.1 Partners within the MoH

- IMCI Unit
- Reproductive and Child Health Unit, on safe motherhood initiatives for malaria in pregnancy
- Health Sector Reform Secretariat
- Community Based Health Care Unit, on community based initiatives on malaria
- Epidemiology and Disease Surveillance Unit, on integrated disease surveillance and response,
- Vector Borne Diseases Control Section on vector control guidelines
- Health Education Unit on information for behavioural change
- EPI, on surveillance and targeted ITN support
- Health Management Information System (HMIS), on monitoring and evaluation

- Environmental Health and Sanitation Unit, on malaria vector control and environmental impact assessment of development projects
- Directorate of Hospital Services; case management
- Pharmacy Board and Medical Stores Department, on drug quality assurance, registration and drug supplies
- Inspectorate Unit; quality assurance of health services delivery
- School Health Programme, on promotion of malaria prevention in schools
- Department of Policy and planning, on allocation of financial resources for malaria
- Directorate of Administration and Personnel, on manpower allocation
- Directorate of Human Resource and Development, on capacity building

7.4.2 Other Ministries and departments

- President's Office: Regional Administration and Local Government on advocacy and resource allocation for malaria control at Council level
- Ministry of Finance on mobilisation of resources and allocation
- Tanzania Revenue Authority, on tax regulation
- Ministry of Information and Broadcasting, on public information
- Ministry of Community Development Women Affairs and Children, on promotion of malaria control at community level
- Ministry of Education and Culture, on promotion of malaria control in schools
- Tanzania Peoples Defence Force, on encouraging adoption of malaria control strategies by armed forces personnel and their families
- Tanzania Meteorological Agency, on early warning of malaria epidemics
- Ministry of Water and Livestock, on environmental management and land use
- Ministry of Food and Agriculture

7.4.3 Donors, NGOs, research and other institutions:

Bilateral Organizations

- DANIDA -Through basket funds at central MoH and district basket
- NORAD - Through basket funds at central MoH and district basket
- Ireland Aid - Through basket funds at central MoH and district basket
- DFID - Through basket funds at central MoH and district basket
- JICA
- USAID
- Italian Cooperation
- Royal Netherlands Embassy
- GTZ
- SDC

Research Institutions and projects

- IHRDC
- MUCHS
- KCMC
- NIMR
- Joint Malaria Programme / GATES Malaria Programme
- TEHIP
- AMMP
- CEEMI

NGOs

- AMREF
- PSI
- PLAN International
- CARE International
- World Vision
- MSF
- CUAMM
- NGO Malaria Forum

Health and Health related Training Institutions

- MUCHS
- Zonal training Centres

Academic Institutions

Health facilities

Multilateral Organizations

- WHO
- UNICEF
- World Bank

7.4.4 Private Sector

- Manufacturers of nets, insecticide and pharmaceuticals
- Health providers
- Distributors
- Media Houses and advertising agencies

7.4.5 Role of partners

Partners will be encouraged to engage in the process to 'Roll Back Malaria' by providing technical, financial and other support to malaria control according to their respective abilities.

- Development partners for resource mobilisation and technical advice
- Implementation partners (NGOs, CBOs) for the delivery of health services and behaviour change communications to communities
- Research institutions for undertaking research and enabling the translation of research findings on effective interventions into policy and practice
- Private sector for the provision of quality health care services, effective anti-malarial drugs, insecticide treated mosquito nets, equipment and other supplies necessary for malaria control

All partners should encourage and promote public-private partnerships for malaria control at whatever level they function.

7.4.6 Regional, District and community level partnerships

The National level in collaboration with the Regional Secretariat and CHMTs will facilitate the process of strengthening partnerships at regional and district levels based on the needs outlined under various strategic interventions.

Chapter Eight: Financial resource implications

8.1 Financing the plan

Resources for malaria control at national and district will come from the government and developmental partners (in and outside the SWAP basket). Resources will also be sought from the private sector, non-governmental and voluntary agencies and through community participation.

8.1.1 District level

Health sector reforms are being implemented in phases throughout the country. 82 districts have already been covered in phases 1 and 2. These districts receive 0.5 USD per capita from the pooled resources of the basket partners. The remaining 32 districts do not yet get support from the basket.

The mismatch of resource allocation for malaria interventions compared with the burden of disease found in most comprehensive district health plans has retarded malaria control. Investment in IMCI implementation and local initiatives for integrated malaria control will reduce the impact of malaria. The additional funds available through the basket to districts, have in many cases not been allocated to malaria it is therefore proposed that additional funds be made available to districts to encourage planners to quantify the burden of mortality and morbidity imposed by malaria and facilitate the adoption of the interventions outlined in the MMTSP that will have the greatest impact on the overall levels of infant, under five and maternal mortality.

- (i) 82 councils that are currently getting \$ 0.5 per capita from basket partners, with an estimated population of 30,874,000, should get an additional \$ 0.05 per capita to cater for scaling up of malaria control. The total additional budget for these 82 councils would be \$ **1,543,700** per year (five year total **\$7,718,500**)
- (ii) 32 Councils not yet included in the basket, with a total population of approximately 6,800,000 should get \$0.1 per capita. The total additional funds for malaria scaling up would be \$ **680,000** per year (five year total **\$3,400,000**)
A mechanism for disbursement of funds to the 32 districts (where reforms are not yet in place) will be required from the MoH

The cost of this recommendation for all 114 councils over 5 years would be \$ 11.1 Million (\$2,223,700 annually).

8.1.2 National and Regional level

For activities coordinated through the Ministry of Health **\$10.76 Million** are required in the financial year 2002/2003. **\$13.7 Million** in 2003/2004, and **\$14.3 Million** in 2004/2005. **\$65 Million** are required over the next five years)

8.1.3 Grand Total over five years

The five-year total for the MMTSP is US \$ **76 Million**