
**NATIONAL FIVE-YEAR STRATEGIC PLAN
FOR MALARIA PREVENTION & CONTROL IN
ETHIOPIA
2006 – 2010**



**Federal Democratic Republic of Ethiopia
Ministry of Health**

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Table of Contents

ACKNOWLEDGMENTS	2
CHAPTER I. BACKGROUND	7
1. COUNTRY PROFILE.....	7
1.1 GEOGRAPHY AND CLIMATE.....	7
1.2 DEMOGRAPHY	7
1.3 ECONOMY	8
1.4 ADMINISTRATIVE SET UP	8
2. HEALTH PROFILE	9
2.1 NATIONAL HEALTH POLICY AND HEALTH CARE SYSTEM.....	9
2.2 HEALTH STATUS.....	1
2.3 MALARIA SITUATION IN ETHIOPIA.....	2
2.4 MALARIA EPIDEMIOLOGY	2
2.5 HISTORY OF MALARIA CONTROL IN ETHIOPIA	3
3. STRATEGIC DIRECTIONS OF MALARIA PREVENTION AND CONTROL IN ETHIOPIA.....	4
3.1 VISION	4
3.2 MISSION.....	4
3.3 MANDATE.....	4
3.4 VALUES	4
CHAPTER II: MAJOR ACHIEVEMENTS OF THE FIRST FIVE YEAR PLAN (2001 – 2005)	5
1. OBJECTIVES	5
2. TRENDS IN THE BURDEN OF MALARIA.....	5
3. ASSESSMENT ON THE STATUS OF IMPLEMENTATION OF INTERVENTIONS.....	7
4. BUDGET AND EXPENDITURE SUMMARY - 2001 - 2005.....	11
CHAPTER III: FRAMEWORK OF THE STRATEGIC PLAN 2006 – 2010.....	12
1. PURPOSE	12
2. METHODOLOGY OF DEVELOPMENT	12
3. SCOPE	13
4. GOAL	13
5. GENERAL OBJECTIVES	13
6. INDICATIVE FIVE YEAR BUDGET 2006 – 2010	13
7. FOCUS OF THE STRATEGIC PLAN.....	14
1. SITUATION ANALYSIS & STRATEGIC DIRECTIONS.....	14
1.1 EARLY DIAGNOSIS AND EFFECTIVE TREATMENT	14

1.2	SELECTIVE VECTOR CONTROL	15
1.3	EPIDEMIC PREVENTION AND CONTROL	16
1.4	IEC/BCC ON MALARIA	17
1.5	HUMAN RESOURCE DEVELOPMENT	17
1.6	HEALTH MANAGEMENT & INFORMATION SYSTEM	18
1.7	MONITORING AND EVALUATION	18
1.8	OPERATIONAL RESEARCH (OR)	20
2.	OBJECTIVES, TARGET AND INDICATORS (2006 – 2010).....	36
CHAPTER IV: IMPLEMENTATION ARRANGEMENT, PARTNERSHIP AND		44
COORDINATION (TO BE REVISED)..... ERROR! BOOKMARK NOT DEFINED.		
1.	POLICY ENVIRONMENT	44
2.	INSTITUTIONAL FRAMEWORK AND RESPONSIBILITIES	45
3.	PARTNERSHIP AND COORDINATION	46
4.	IMPLEMENTATION OF THE STRATEGIC PLAN	48

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List of Acronyms

ACT	Artemisinin Based Combination Therapy
ANC	Ante Natal Care
ARI	Acute Respiratory Infection
CHW	Community Health Workers
CQ	Chloroquine
DALY	Disability Adjusted Life Years
DHO	District Health Officer
DHS	Demographic Health Survey
DPPC	Disaster Preparedness, Prevention and control
FAO	Food and Agricultural Organization
FDRE	Federal Democratic Republic of Ethiopia
FMOH	Federal Ministry of Health
GIS	Geographic Information System
HMIS	Health Management Information system
EHNRI	Health and Nutrition Research Institute
HSDP	Health Sector Development Program
IDS	Integrated Diseases Surveillance
IEC	Information, Education, Communication
IMCI	Integrated Management of Childhood Illnesses
IRS	Indoor Residual Spray
ITN	Insecticide Treated Nets
KAP	Knowledge, Attitude, Practice
LBW	Low Birth Weight
LC	Larval Control
LLITN	Long Lasting Insecticide Treated Net
MCST	Malaria Control Support Team
MGDs	Millennium Development Goals
NGO	Non-Government Organizations
PHCU	Primary Health Care Unit
IPT	Intermittent Presumptive Therapy
RDT	Rapid Diagnostic Tests
RBM	Roll Back Malaria
RHB	Regional Health Bureau
SP	Sulphadoxine-Pyrimethamine
TBA	Traditional Birth Attendants
TOT	Training of Trainers
UNDP	United Nations Development Program
UNFPA	United Nations Family Planning
UNICEF	United Nations Children Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WDP	Water Dispersible Powder
ZHD	Zone Health Department

Foreword

Malaria is a major public health problem in Ethiopia. Over the past years, the disease has been consistently reported as the first leading cause of outpatient visits, hospitalization and death in health facilities across the country.

The impact of malaria, in addition to its health consequence, also causes loss of work force and time both of the sick and the family members who provide care, increases school absenteeism, causes loss of income and depletion of family savings, which in effect jeopardizes household self-sufficiency that contributes to increase in the number of families that may need relief handouts.

Cognizant of the health and socio-economic problems the disease causes, the Federal Ministry of Health (FMOH), Regional Health Bureaus and partners have been working jointly to strengthen malaria prevention and control activities in the country. To support implementation of the malaria prevention & control strategies, the FMOH developed several guiding documents. These include the first five year strategic plan (2001 – 2005) and guidelines developed to provide technical guidance on malaria case management, scaling-up of selective control with special emphasis on Insecticide Treated Nets (ITNs) and Indoor Residual Spraying (IRS) and prevention and control of epidemics.

Following end of the first five-year of implementation from 2001 – 2005, this national five-year strategic plan for 2006 – 2010 has been developed to guide malaria prevention and control in the country. The National Five-Year Strategic Plan for 2006 – 2010 will focus on scaling-up of malaria control activities in the context of the Accelerated Expansion of Primary Health Care Coverage in Ethiopia with special focus on maximizing the role of Health Extension Workers in malaria prevention and control. This effort will also be hastened by strengthening partners and community participation and ownership of the program and the joint effort will be geared towards contributing to the achievement of the Millennium Development Goal (MDG) targets of reducing the burden of malaria and to eventually halt transmission of the disease by 2015.

The main strategic areas that have been identified for the scaling-up of malaria prevention and control activities will include among others, case management, selective vector control with special emphasis on increasing coverage and utilization of Insecticide Treated Nets (ITNs) and targeted and timely application of In-door Residual Spraying (IRS). Improving the capacity in malaria epidemics preparedness, early detection and containment will also be given due emphasis.

I am hopeful that this strategic plan will be effectively used to guide the national effort in fighting malaria through concerted actions at all levels of the health system. I am also confident that the support that will be provided from the government, communities and the partners will be effectively utilized to bring the intended end results that will contribute to improved health and socio-economic conditions in Ethiopia.

Dr. Tedros Adhanom Ghebreyesus
Minister
Federal Ministry of Health

Executive Summary

An estimated 68% of the total population of 73 million in Ethiopia lives in malarious areas covering almost 75% of its land. The diverse eco-climatic condition in the country makes the malaria transmission pattern seasonal and unstable usually characterized by frequent focal and cyclic widespread epidemics.

The disease has been consistently reported as one of the three top leading causes of morbidity and mortality over the past years. Similarly, in 2004/05 it has been reported as the first cause of morbidity and mortality accounting for 16.6% Out-patient consultations (OPD), 15.0% admissions and 29.0% deaths.

Cognizant of the health problems and the need to deliver a comprehensive health care service that will contribute to improvement in the health and socio-economic conditions in the country, the Government of Ethiopia developed and endorsed a twenty-year Health Sector Development Program (HSDP) in 1997. The main objective of the HSDP is to provide comprehensive, integrated and cost effective primary health care service, with focus on communicable diseases prevention and control, nutrition, environmental health and hygiene, reproductive health and immunization.

In line with the HSDP and the global initiative to Roll Back Malaria (RBM), the Federal Ministry of Health developed a five-year national strategic plan for the prevention and control of malaria for the period 2001 – 2005. The objective was to achieve a 25% reduction in the burden of malaria by the end of 2005 by ensuring at least 60% coverage in the major malaria intervention that includes access to effective treatment, suitable vector control and detection and containment of malaria epidemics within two-weeks from onset.

The first five-year period of implementation has been completed in December 2005 and the progress thus far has been evaluated at regional and national level. Based on the review reports and findings of the DHS 2005, the achievement thus far is way below the set targets. The status of coverage of interventions in 2005 stands at 5% for access to effective treatment within 24 hours, 24% households owning at least one ITNs and the rate of detection and containment of malaria epidemics within two weeks remains at 31% while the use of IPT during pregnancy has not been implemented at all¹.

The major problems associated with this low achievement in the coverage of the malaria prevention and control activities is mainly related to the low health service coverage which potentially serves about 64% of the population and the limited resource input and low implementation capacity experienced during the period. Other factors such as the widespread failure in the efficacy of the first line anti-malarial drug, sulfadoxine-pyrimethamine (SP) and the poor targeting and timing of vector control interventions have also contributed to the increase in transmission, which eventually led to the occurrence of the widespread malaria epidemics in 2003.

The period from 2004 – 2005 therefore has been mainly a period of change and rapid scale up of interventions. These include the change from mono-therapies to the introduction of ACTs and rapid scale-up of coverage with ITNs and training of health workers at various levels of the health system.

The second five-year national strategic plan for the period from 2006 to 2010, therefore, has been developed in line with HSDP III and RBM strategies aiming to achieve a 50% reduction in the burden of malaria by 2010. In the HSDP III, a program of accelerated expansion of health service will be

1. FMOH (2006) Proceedings of the RBM National Review and Planning Meeting 11 – 13 January 2006, Adama

implemented and it aims to achieve 100% health service coverage by 2010. This is believed to be materialized through a rapid construction of health facilities and training and deployment of up to 37,000 Health Extension Workers who will be assigned at 2 HEW per 5000 population.

The malaria prevention and control strategic plan for the next five years, therefore will take this advantage and aims to rapidly scale-up access to early diagnosis and treatment service aiming to achieve 90% access by 2010 and selective vector control including the use and coverage of ITNs to achieve 90% coverage by 2007. For the achievement of these targets, a total of US\$447 million will be required for the coming five years and the resource is expected to be mobilized from various sources.

The Federal Ministry of Health strongly believes that working in close collaboration with the community and partners is the way forward. The FMOH also emphasizes that resource utilization must be maximized by delivering coordinated and integrated services so that the combined efforts will contribute to the achievement of the MDG goals.

Chapter I. Background

1. Country Profile

1.1 Geography and Climate

Ethiopia covers approximately 1.25 million square kilometers and comprises geographic terrains with altitude ranges from 110 meters below sea level to 4720 meters above sea levels (fig.1). It has numerous water bodies such as lakes, rivers, and streams. Roughly, 40% of the country lies above 1500m, of which over 45% is higher than 2000m.

Climate (rainfall, temperature and relative humidity) are strongly associated with altitude and relief which in turn influence settlement pattern of the population. Annual rainfall totals generally appear to increase with the increase in altitude while mean monthly temperatures decrease with the increase in altitude (figures 2 and 3). Hence, areas located below 1500m altitude in Afar and Somali regions are relatively dry and hot with mean annual rainfall total ranging from 40-400mm and mean monthly temperature ranges from 25-30 °c. In this part of the region, malaria is available only near water bodies. These areas are also affected by recurrent drought and flood. Semi-arid areas that receive mean annual rainfall ranging from 400-800mm are also considered epidemic-prone with unstable seasonal malaria.

However, similar lowland areas located below 1500m in western parts of the country are hot and humid and usually receive mean annual rainfall ranging from 800-1200mm with mean monthly temperatures ranging from 25-30 °c. Hence, because of these favorable climatic conditions, there is relatively stable and perennial malaria. Areas located between 1500 and 1750m altitude such as plain areas, valleys, etc have subtropical sub-humid climate with mean annual rainfall ranging from 1000-1200 mm and mean monthly temperate ranging form 22-25°c. Both temperature and rainfall are important factors of malaria transmission. Malaria is relatively meso-endemic and shows seasonal fluctuations due to seasonal and inter-annual variations in climatic conditions. Highland fringe areas located between 1750 and 2000m usually receive high annual rainfall (1200-1600mm) with mean monthly temperatures ranging from 18-25 °c. Because of high seasonal and inter-annual variations in climatic conditions, seasonal and periodic malaria epidemic are common especially those linked to ENSO events and neglect or breakdown of vector control operations. Areas located in the eastern part of the country such as Tigray, eastern Amhara, Dire Dawa, Afar and Somali regions have experienced repeated drought and famine at interval of 5-8 years.

Highland areas located between 2000-2500 are cool temperate areas with mean annual rainfall ranging between 1200-2200mm and temperature ranging from 15-18°c. Temperature is an important limiting factor for malaria transmission. Periodic malaria is common due to abnormal climatic conditions linked to El Nino events. Areas located between above 2500m altitude has cold type of climate with annual rainfall total ranging from over 1200mm and mean monthly temperature ranging from 4-15°c.

1.2 Demography

Based on the housing and population census report of 1994 and the annual growth rate of 2.7% pa, the projected population in 2005 is estimated at 73, 043,510. At an annual growth rate of 2.7%, the

population is expected to reach 82.1 Million by the year 2009¹. Almost half of the population (49.7%) is female and the average household size is 4.8.

Almost 85% of the total population lives in rural areas, making Ethiopia one of the least urbanized countries in the world. As in many other developing countries the rate of growth of the urban population (4.1%) is higher than that of the total population (2.7%). The average population density is 57 per square km, with great variation among regions. Higher densities are found in the highland areas, mostly above the 1,500m contour line. About 23.2% of the population is concentrated on 9% of the land area causing over cultivation and that contributes to environmental degradation. On the other hand, roughly 50 percent of the land area is sparsely populated with nomadic or semi-nomadic pastoral people living in arid plains or in a semi-desert environment. The demand to increase food production by cultivating lowland areas is seriously challenged by the risk of malaria and other vector borne diseases and the health service coverage in these areas is limited.

The structure of the population of Ethiopia shows the dominance of the young as is typical of many developing countries. About 43.5% of the population comprises those under the age of 15 years; 51.9% between the ages of 15 and 59 years and only 4.6 % aged 60 years and above. A large proportion of women (24%) are in the reproductive age (15-49 years). The main characteristic of the Ethiopian population is therefore its youthfulness, with children (0-14 years) and youth (15-24 years) together accounting for almost 64 percent of the total.

1.3 Economy²

Ethiopia is one of the least developed countries in the world with an estimated per capita income of US\$100 or US\$720 in purchasing power parity terms in 2002. Poverty is pervasive with 44% of the population estimated to live below the poverty line.

The Government has been implementing a comprehensive economic reform program over the past decade. Since 1991, new economic measures were put in place to operationalize a free market economy and redirect Government interventions to social and infrastructure development. In particular, health and education service delivery and investment in roads and water resources development were given prominence.

Although spending on health both public and private has been increasing from US\$ 4 to US\$ 5.60 per capita, this is very low level compared to levels in SSA Countries i.e. Kenya (US\$31), Uganda (US\$18) and Tanzania (US \$ 8). Meeting the targets set by the CMH and for meeting the MDGs (about US\$34 per capita) call for substantial increases of the present levels of spending on health.

¹Central Statistical Authority (1994). *The 1994 GC Population and Housing Census of Ethiopia: Analytic Report*. Addis Ababa.

²The World Bank (2004). *Ethiopia: A Country Status Report on Health and Poverty, Draft Report No28963-ET*.

1.4 Administrative Set up

Ethiopia has a federal system of administration where power is decentralized to regions and districts. The federal structure is composed of nine Regional States namely: Oromiya, Amhara, Southern Nations Nationalities and Peoples Region (SNNPR), Tigray, Somali, Afar, Benshangul Gumuz, Gambella and Harari and two city Administrations councils of Addis Ababa and Dire Dawa.

The National Regional States and City Administrations have 611 Woredas (districts) and each Woreda has an assembly of elected representatives. The Woredas are further divided into roughly

15,000 Kebeles (localities) out of which, 10,000 are rural peasant associations and the remaining 5,000 Kebeles urban dwellers associations.

For the administration of public health care in the regions and districts, there are Regional Health Bureau (RHB) and district health offices at each level. In some regions, there are zones administrations that coordinate work for a number of districts. However, zonal offices do not have an assembly and decision-making is solely a power vested to the districts.

2. Health Profile

2.1 National Health Policy and Health Care System

The health policy of the Federal Democratic Republic of Ethiopia (FDRE) was developed based on the critical examination of the nature, magnitude and root causes of the prevailing health problems of the country, and the awareness of newly emerging ones. The policy aims at strengthening a decentralized system as this system is the most appropriate to reach a vast majority of the rural population, which has limited access to basic health care services. During implementation of the HSDP I and II, the decentralized system of health care service delivery has been confirmed to be the most appropriate modality to address specific health problems of communities in the diverse ethnic and cultural setting including their settlement pattern and socio-economic settings. The health policy being based on ideals of the constitution that aims to develop a democratic system and society, gives strong emphasis to the fulfillment of the needs of the less privileged rural population and population groups with pastoralist practices.

Important steps have thus far been taken in the decentralization of the health care system. Accordingly, decision making processes in the development and implementation of the health system are shared between the Federal Ministry of Health (FMOH), the Regional Health Bureaus (RHBs) and the Woreda Health Offices. Recent policy measures have reiterated that the role of the FMOH and the RHBs to focus more on policy matters and technical support, while the Woreda health offices have been made to play the pivotal roles of managing and coordinating the operation of the primary health care services at the Woreda levels².

3. Federal Ministry of Health (2005), Health Sector Strategic Plan (HSDP-III) 2005/6-2009/10

In the national health policy a Primary Health Care Service is designed to include preventive, promotive and basic curative and rehabilitative services. For the realization of delivery of this service, the HSDP I introduced a four-tier system for health service delivery, characterized by a primary health care unit (PHCU), comprising one health center and five satellite health posts, and then the district hospital, zonal hospital and specialized hospital. A PHC-unit has been planned to serve 25,000 people, while a district and a zonal hospital are each expected to serve 250,000 and 1,000,000 people respectively.

The Health Sector has recently introduced an innovative health service delivery system through the implementation of the Health Service Extension Program (HSEP). The HSEP aims to train and deploy Health Extension Workers (HEW) who will be assigned to serve a population of 5000 with 2 HEWs. Accelerated Expansion of Primary Health Services strategy has also been endorsed as part of facilitating the implementation of the HSEP.

As the full deployment of the required number of HEWs is expected to take up to four years, a bridging strategy is being implemented in 325 drought prone and food insecure woredas through the Enhanced Outreach Strategy (EOS). The EOS offers a set of high impact child survival interventions that include measles vaccination, deworming, nutritional assessment, vitamin-A and ITN distribution that will reach up to six million children every six months.

The health policy also encourages promoting the participation of the private sector, civil societies and non-governmental institutions in contributing to the delivery of health services³. Health services in Ethiopia are financed by four main sources. These are government (both federal and regional); bilateral and multilateral donors (both grants and loans); non-governmental organizations; and private contributions. The National Health Accounts exercise for financial year 2000/01 revealed that the major contribution is that of household's contribution (36%), government (33%), and bilateral and multilateral donors (16%)⁴.

2.2 Health Status

The health status in Ethiopia is generally poor compared to the health status in other low-income countries. This is largely attributed to preventable infectious ailments and nutritional deficiencies. Infectious and communicable diseases account for about 60-80 % of the health problems in the country. The Health and Health Related Indicator of MOH indicates that malaria, helminthiasis and respiratory tract infections are the major causes of outpatient visits at the health institutions⁵.

Widespread poverty along with general low income levels of the population, low education levels (especially among women), inadequate access to clean water and sanitation facilities and poor access to health services have contributed to the high burden of ill-health in the country.

Average life expectancy at birth is also relatively low at 54 (53.4 for males and 55.4 for females)⁶ and is further expected to decline to 49.4 years if present HIV infection rates continue⁷.

Malaria remains as the major causes of morbidity as well as mortality in the country. The RBM baseline survey indicated that only 31% of cases of fever seen in health facilities were properly

⁴ FMOH (2004/05) *Health and Health Related Indicators*

⁵ FMOH (2003). *Ethiopia's Second National Health Accounts Report, Addis Ababa*

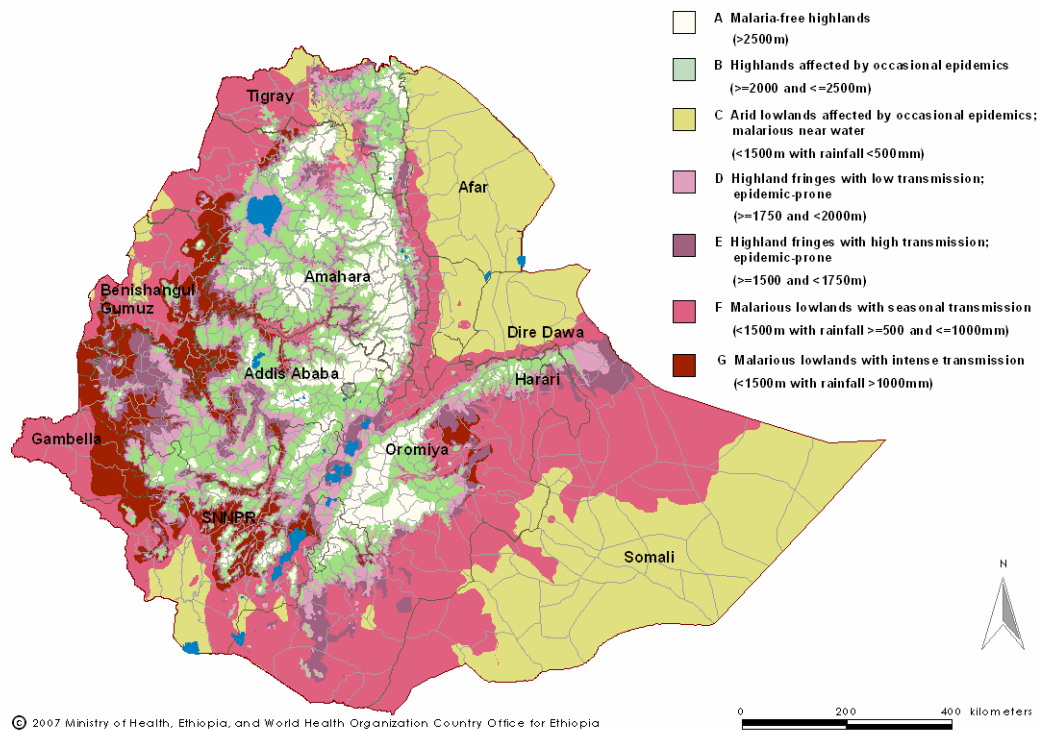
⁶ Population Reference Bureau (2001). *World Population Data Sheet*

⁷ FMOH (2004) *AIDS in Ethiopia*.

managed; only 7 % of children with malaria received early diagnosis and treatment and the case fatality rate was 5.2%⁸. Infant and under five mortality are 97/1000 and 140/1000 respectively.

2.3 Malaria Situation in Ethiopia

2.3.1 Malaria Epidemiology

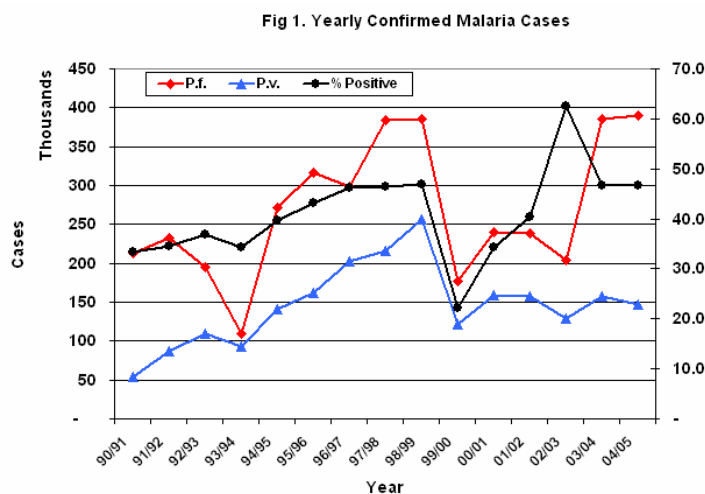


In Ethiopia, altitude and climate are the most important determinants for malaria transmission. Transmission is seasonal and predominantly unstable. The major transmission of malaria follows the June – September rains and occurs in the period from September - December while the minor transmission season occurs in April – May following the February – March rains. The bimodal malaria transmission pattern is limited to areas that receive the small “*Belg*” rains and are mainly located in the eastern part of the country, while the major malaria transmission occurs in all area at risk of malaria (see map).

Based on altitude, annual rainfall total l, and mean monthly temperatures, Ethiopia can generally be divided into seven major eco-epidemiological zones of malaria:

Strata	Description	Altitude (m)	Annual rainfall (mm)
A	Malaria-free highlands	>2500	
B	Highlands affected by occasional epidemics	≥ 2000 and ≤ 2500	
C	Arid lowlands affected by occasional epidemics; malarious near water	<1500	<500
D	Highland fringes with low transmission; epidemic-prone	≥ 1750 and <2000	
E	Highland fringes with high transmission; epidemic-prone	≥ 1500 and <1750	
F	Malarious lowlands with seasonal transmission	<1500 m	≥ 500 and ≤ 1000
G	Malarious lowlands, intense seasonal transmission	<1500	>1000

P. falciparum and *P. vivax* are the most dominant malaria parasites in Ethiopia. They are prevalent in



all malarious areas in the country and their relative composition generally is 60% and 40% of the malaria cases respectively. *P. malariae* accounts for less than 1% and *P. ovale* has never been reported from health facilities with the only report being that of Armstrong JC in 1969⁹. The major malaria vector known in Ethiopia is *An. arabiensis*. In some areas *An. pharoensis*, *An. funestus* and *An. nili* also transmit the malaria.

2.3.2 History of malaria control in Ethiopia

Malaria control activity in Ethiopia was first launched as pilot projects in the 1950's and then launched in to a national eradication campaign in the 60's. In early 1970's, the Malaria Eradication Service was re-organized into a control program. Following this, in 1976 the vertical organization known as the National Organization for the Control of Malaria and Other Vector-borne Diseases (NOCMVD) evolved from the Malaria Eradication Service (MES). Until 1993, this organization had been operating with one central office, 17 regional or zonal offices, consisting of 70 sector offices and more than 1,400 malaria detection and treatment posts.

⁹ *Trans R Soc Trop Med Hyg.* 1969; 63(2):287-8

Since June 1993, under the general policy of decentralization and democratization of the administration based on the federal system of administration in the country, malaria control became an integral part of the basic health service and the responsibility of managing malaria prevention and control activities has been vested to Regional Health Bureaus.

3. Strategic Directions of Malaria Prevention and Control in Ethiopia

3.1 Vision

The vision of malaria prevention and control in Ethiopia is to achieve and maintain a situation whereby malaria ceases to be a public health problem and impediment to socio-economic development.

3.2 Mission

The mission of the Federal Ministry of Health (FMOH) Malaria Prevention and Control program is to expand and maintain high quality service for malaria prevention and control with special emphasis on ensuring access to early and equitable services for the population at risk of malaria with special emphasis to the most vulnerable population groups. This effort is expected to reduce the malaria burden significantly and the return is expected to contribute to improved health and socio-economic conditions which will create a better environment for communities and partners to maintain their contributions.

3.3 MANDATE

The malaria prevention and control program of the Federal Ministry of Health (FMOH) is mandated to develop malaria prevention and control strategies and guidelines based on latest scientific advances that are suitable to the local situation. FMOH has also the mandate to support planning of malaria prevention and control activities and to strengthen implementation capacity of regions, mobilization of resources and conduct program monitoring and evaluation.

3.4 VALUES

The malaria prevention and control program of the Federal Ministry of Health will strive to inculcate that the health and socio-economic problems that are caused by malaria can only be controlled through Malaria prevention and control activities that are suitable to the local condition and applied to achieve high quality, accessible and equitable services.

Chapter II: Major Achievements of the First Five-Year Plan (2001 – 2005)

1. Objectives

The objectives of the first five year national strategic plan (2001 – 2005) were to reduce the overall burden of malaria (morbidity and mortality) by 25% by the end of the year 2005 as compared to the year 2000 levels, and to maintain malaria free areas through strong surveillance and preventive measures.

2. Trends in the Burden of Malaria¹⁰

Almost 68% of the 73 million populations in Ethiopia live in malarious areas covering almost 75% of the land. The diverse eco-climatic conditions in the country make the malaria transmission pattern seasonal and unstable usually characterized by frequent focal and cyclic widespread epidemics.

Over the last five years (2001 – 2005) the proportion of malaria in out patient department, admission and in-patient deaths has been increasing with the highest being recorded in 2003 and 2004 while a slight reduction was observed in 2005. In 2005, malaria was still the first leading cause of health problem accounting for 48% of out patient consultation, 20% admissions and 24.9% inpatient deaths¹². It has also been documented in the a nationwide child survival study that malaria affected school attendance by 20% and contributes to 47% of the child death in Ethiopia.

The annual average number of malaria cases reported over the period from 2001 – 2005 was 9.4 million (range 8.4 – 11.5) while the annual average number of confirmed cases was 487,984 (range 392,419 – 591,442)¹². In addition to this, an estimated 36% of the population is out of the reach of the health service coverage. Based on these scenarios, the actual number of malaria cases that might occur annually throughout the country is estimated to be higher.

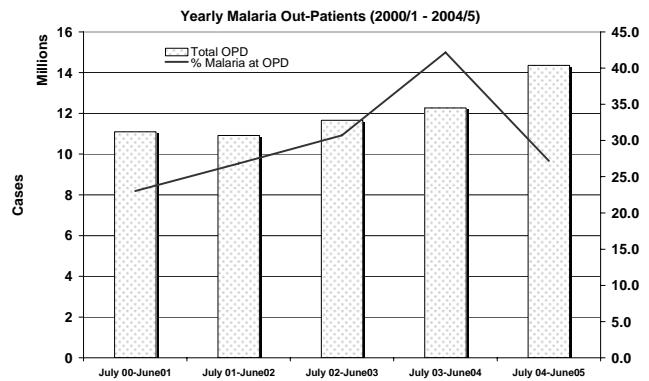
Malaria is also a significant impediment to social and economic development in Ethiopia. In endemic areas, malaria strikes during planting and harvesting seasons, cutting down productive capacity at a time when there is the greatest need for agricultural work. The disease is also associated with loss of earnings, low school attendance, and high treatment cost. Overall, Malaria in Ethiopia is estimated to account for 30% of the DALYs.

Malaria also impedes flow of trade, foreign investment and commerce. During epidemics, malaria also causes panic and stress in the general population and economic activities; particularly the agricultural sector is seriously affected. Health facilities are also overwhelmed with patients and a lot of resources is required to deal with the emergency situation.

According to the report of the Regional Health Bureaus, the overall burden of malaria (number and relative percentage of malaria outpatient consultations, malaria inpatient admissions and malaria inpatient deaths) showed significant increases (21-23% increase on average as compared to the 2001 level) over the period of the last five years. The highest burden of malaria (30-34% increase) was observed in 2003 and 2004. The high case fatality rates were particularly observed during the 2003 epidemics, particularly in the Oromiya, Amhara, Tigray, and SNNP regions.

¹⁰ FMOH (2006) *Proceedings of the RBM Review & Planning Meeting 11 – 13 January 2006*

This epidemic had affected over 3689 villages in about 211 districts with more than 2 million reported cases and 3000 deaths. Since most cases and deaths occurring at community level during the epidemics were not documented, the actual number of deaths that might have occurred during the epidemic is estimated at over 45,000 deaths¹¹. The progressive increase in the annual trend of malaria is also related to the widespread decline in the efficacy of the anti-malarial drugs (SP)¹² and the low coverage of preventive interventions such as IRS and ITNs that reaches only 20% of the population at risk.



11. Negash K, et al Malaria epidemics in the highlands of Ethiopia. *East Afr Med J.* 2005 Apr; 82(4):186-92

12. Jima D, et al., Efficacy of sulfadoxine-pyrimethamine for the treatment of uncomplicated falciparum malaria in Ethiopia. *East Afr Med J.* 2005 Aug; 82(8):391-5.

3. Assessment on the Status of Implementation of Interventions

3.1 Prompt and effective treatment

Objective/Target by end of 2005	<ul style="list-style-type: none"> To provide access to prompt and effective treatment to 60% of the population at risk of malaria within 24 hours of the onset of fever by the end of 2005,
Strategy:	<ul style="list-style-type: none"> Deliver service through health facilities and community based services
Policy Guidelines:	<ul style="list-style-type: none"> Evidence based shift to ACTs and use of RDTs introduced in July 2004, guideline revised & training conducted. Full implementation started in 2005,
Status in 2000	<ul style="list-style-type: none"> Access to treatment 4.2% (RBM baseline survey 2000)
Status by end of 2005	<ul style="list-style-type: none"> Access to treatment of 3.0% and 0.7% the same day¹³
Major Constraints	<ul style="list-style-type: none"> Slow progress in the health service coverage (41% in 2001 to 64% in 2005), Drug resistance Shortage in the supply of ACTs and RDTs,
Future Direction	<ul style="list-style-type: none"> Ensure adequate financing for ACTs & RDTs, Expand access to malaria diagnosis & treatment at peripheral level through Health Extension Package workers, Strengthen drug management (procurement, distribution & tracking etc) Strengthen Pharmacovigilance & quality control & assurance for RDTs, Liaise with investors for the local production of ACTs & RDTs

3.2 Selective Vector Control

Objective/Target by end of 2005	<ul style="list-style-type: none"> To achieve 60% coverage of the population at risk with effective vector control interventions including the use of ITNs, by the end of 2005
Strategy:	<ul style="list-style-type: none"> Indoor Residual Spraying through District Health Offices, ITNs distribution based on segmented market approach and through health facilities and campaigns, Prioritizing high risk areas and population group
Policy Guidelines:	<ul style="list-style-type: none"> National ITNs strategic plan & guideline developed in 2004, Guidelines for vector control including IRS,
Status in 2000/01	<ul style="list-style-type: none"> Household ITNs Coverage of 1.1% (DHS 2000), % Household with at least one ITNs 16.2%¹⁴ (RBM baseline survey 2001)
Status by end of 2005	<ul style="list-style-type: none"> 5.7 % Households with at least one net,¹⁷ 3.3% Households with at least one ITN¹⁷ 24% HH with at least one ITN FMOH estimates,¹⁵ 20% IRS coverage in villages at risk of epidemics
Major Problem	<ul style="list-style-type: none"> Shortage in supply of ITNs, Declining quality in targeting & timing of IRS due to resource limitation
Direction	<ul style="list-style-type: none"> Ensure adequate financing for ITNs, and IRS Improve timing and targeting of IRS through capacity building.

13 EDHS 2005 Preliminary Report
 8 FMOH (2001) RBM Baseline Survey Report
 3 FMOH (2005) Health Sector Development Program III

3.3 Epidemic Prevention and control

Objective/Target by end of 2005	<ul style="list-style-type: none"> To detect and contain 60% of the malaria epidemics with in two weeks from onset,
Strategy:	<ul style="list-style-type: none"> Health Facility and community based surveillance, District level verification of epidemics, District level preparedness, response & post-epidemic assessment,
Policy Guidelines:	<ul style="list-style-type: none"> Malaria Epidemics Prevention and Control Guideline revised in 2004,
Status in 2000	<ul style="list-style-type: none"> 6.1% Epidemics detected & contained with two weeks¹⁶
Status by end of 2005	<ul style="list-style-type: none"> 31% Epidemics detected & contained with two weeks¹⁷
Major Problems	<ul style="list-style-type: none"> Low utilization of epidemic monitoring charts by health facilities & districts, Poor preparedness for malaria epidemics and delay in response, Poor post-epidemic assessment
Direction	<ul style="list-style-type: none"> Develop the capacity of malaria epidemics monitoring, preparedness & response at all levels of the health system by ensuring adequate resource input and integration of activities,

3.4 Prevention and Control of Malaria During Pregnancy

Objective/Target by end of 2005	<ul style="list-style-type: none"> To formulate national guideline regarding the prevention and control of malaria during pregnancy based on evidence gathered from local studies. To decrease the incidence of severe malaria in pregnant mothers, and maternal anemia and LBW due to malaria
Strategy:	<ul style="list-style-type: none"> Conduct study to document the burden of malaria during pregnancy, To strengthen antenatal clinics to malaria preventive & curative services for pregnant women.
Policy Guidelines:	<ul style="list-style-type: none"> National ITNs program given priority for free distribution of ITNs to pregnant mothers,
Status in 2001	<ul style="list-style-type: none"> 3.7% took anti-malarial drug for prophylaxis¹⁸ 0.46% Pregnant women sleeping under ITNs²³
Status by end of 2005	<ul style="list-style-type: none"> 0.3% took anti-malarial drug for malaria prevention²² 1.2% Pregnant women sleeping under ITNs¹⁹
Major Problems	<ul style="list-style-type: none"> Low coverage of antenatal service (25%)
Direction	<ul style="list-style-type: none"> Strengthen malaria prevention and control during pregnancy through free targeted distribution of ITNs to pregnant mothers and early diagnosis and treatment services at all levels of the health system.

8 FMOH (2001) RBM Baseline Survey Report

10 FMOH (2006) Proceedings of the RBM Review & Planning Meeting 11 – 13 January 2006

13. EDHS 2005 Preliminary Report

3.5 Human Resources Development

Objective/Target by end of 2005	<ul style="list-style-type: none"> • 60% of PHCU workers in each region trained on basic malariology by 2005, • Incorporate basic malariology in to the training curriculum of health workers and conduct pre-service training,
Strategy:	<ul style="list-style-type: none"> • incorporating the prepared malaria curriculum into the health training schools/ institutions and training of trainers
Policy Guidelines:	<ul style="list-style-type: none"> • NA
Status in 2001	<ul style="list-style-type: none"> • No Indicator
Status by end of 2005	<ul style="list-style-type: none"> • Malaria training curricula not incorporated in to the health workers training curricula, • Various training given to about 15,000 health workers²⁰,
Major Problem	<ul style="list-style-type: none"> • Inadequate coordination and action of concerned authorities at the Ministries of Education and Health.
Direction	<ul style="list-style-type: none"> • Revitalize and achieve integration of basic malariology in to the training curricula of health workers,

3.6 IEC/BCC

Objective/Target by end of 2005	<ul style="list-style-type: none"> • Achieve targeted IEC on key messages on malaria to 60% of households, • Conduct rapid assessment on communication skills among health providers and KAP on media preference in some selected communities.
Strategy:	<ul style="list-style-type: none"> • Use of multi-channel media • Conduct studies
Policy Guidelines:	<ul style="list-style-type: none"> • None at the time
Status in 2001	<ul style="list-style-type: none"> • NA
Status by end of 2005	<ul style="list-style-type: none"> • Ethnographic survey on malaria conducted²¹ • Various pre-tested health education messages prepared & disseminated through media¹⁴
Major Problem	<ul style="list-style-type: none"> • Assessment of coverage and behavioral impact of health education messages not conducted,
Future Direction	<ul style="list-style-type: none"> • • Adaptation of the national communication strategy to cater for malaria control. • Strengthen capacity for well designed IEC/BCC to achieve wider dissemination and assess impact on behavior.

¹⁰FMOH (2006) Proceedings of the RBM Review & Planning Meeting 11 – 13 January 2006
¹⁴ FMOH (2002) Ethnographic Survey on Malaria

3.7 HMIS and Monitoring and Evaluation

Objective/Target by end of 2005	<ul style="list-style-type: none"> Support all districts acquire capacity to collect, analyze and interpret malaria data for decision making & planning, Ensure timely & regular district level reporting on malaria, Establish RBM database system
Strategy:	<ul style="list-style-type: none"> Training of health workers on data management Develop electronic database system, Conduct RBM baseline survey
Policy Guidelines:	<ul style="list-style-type: none"> Standardized routine reporting formats 39 indicators (10 impact, 10 outcome and 19 process) described in the national RBM strategic plan (2001 – 2005),
Status in 2001	<ul style="list-style-type: none"> NA
Status by end of 2005	<ul style="list-style-type: none"> RBM data base system established and training conducted Proactive data for five years (1998 – 2002) collected from 80% health facilities and entered RBM base line survey conducted
Major Problem	<ul style="list-style-type: none"> Data base system not centralized and networked RBM follow-up survey not conducted Lack of timely reporting from district and regions, Lack of refined DHS reports²²
Direction	<ul style="list-style-type: none"> Strengthen capacity for HMIS and monitoring and evaluation at all levels of the health system through an integrated approach.

3.8 Operational Research

Objective/Target by end of 2005	<ul style="list-style-type: none"> Conduct at least four operational studies on priority issues
Strategy:	<ul style="list-style-type: none"> Coordinate and conduct national operational studies in collaboration with regional health bureaus Support academic & research institutions to conduct operational studies
Policy Guidelines:	<ul style="list-style-type: none"> Based on recommended study protocols and research guidelines of the Ethiopian Science and Technology Agency
Status in 2001	<ul style="list-style-type: none"> RBM Baseline Survey Completed
Status by end of 2005	<ul style="list-style-type: none"> A total of nine Studies completed and two in progress <ul style="list-style-type: none"> Two Therapeutic efficacy studies with SP & Coartem for the treatment of uncomplicated falciparum malaria completed Two Therapeutic efficacy studies with CQ, AQ and Coartem for the treatment of vivax malaria completed Study on the 2003 malaria epidemics completed Insecticide efficacy studies on 4% DDT, 50% Malathion, 0.5% Permethrine and 0.05% Delatmethrine completed Study on the economic impact of epidemic malaria completed KAP and willingness to pay on ITNs conducted, Proactive data collection on malaria prevention and control activities completed Pilot study on the community deployment of ACTs & RDTs launched in Tigray regions in 2004. Epidemic early warning project in progress
Major Problem	<ul style="list-style-type: none"> Shortage of human resource at national & regional level & in research institutions.
Direction	<ul style="list-style-type: none"> Complete all ongoing studies and identify other studies for implementation through institutional collaboration.

13 EDHS 2005 Report. Preliminary report of the EDHS 2005 shows findings at national levels and in areas below 1500m. The data, therefore, needs to be reanalyzed by taking in to account malarious (below 2000, most frequent) and non malarious areas. Considering areas below 2500m as malarious will give almost similar result to the national level.

4. Budget and Expenditure Summary - 2001 - 2005

Regional reports on budget and expenditure by source for each of the malaria prevention and control interventions have not been exhaustively documented. This information is expected to be refined due course based on additional information that will be obtained from the regions.

The budget required for the achievement of the targets set during the first five year was US\$122,037,434. However, based on the limited information obtained from the regions the total budget available and used during the period including was US\$ 57,771,276. This clearly indicates that implementation of the planned activities and the achievement to date is what has been scored with only 47.3% of the total financial input required.

Incomplete data set shows the contribution from various sources as following: Government (26%), UNICEF (23%), GFATM, WHO and DCI (10% each), and the remaining 44% from Ethiopian Social Rehabilitation & Development Fund (ESRDF), USAID, UNDP, IDA and other.
Need to put budget in tabular for as far as the data can allow.

Chapter III: Framework of the Strategic Plan 2006 – 2010

1. Purpose

The purpose of this strategic plan is to elaborate the malaria prevention and control country directions and implementation strategies so that all efforts by RBM partners are harmonized and tuned towards achieving the goal of halving the burden of malaria by 2010. Therefore, this strategic plan is intended to serve as a guide for the development of plans of action at various levels in the context of the HSDP III that aims to achieve full access and total coverage of malaria prevention and control intervention services to the population at risk.

The strategic plan also provides indicative figures on the resource needs for the implementation of the planned activities in a bid to emphasize on the need to hasten resource mobilization efforts. The strategic plan also emphasizes on the need to strengthen monitoring and evaluation activities to gauge the implementation rate of planned activities and the coverage attained to ensure that the effort to achieve the goal is in the right direction.

The main purposes of this strategic plan at various levels of the system are:

For Federal Ministry of Health: To identify areas that requires policy decisions and guideline revision and development, as well as coordinating monitoring and evaluation activities, resource mobilization and capacity building.

For Regions: To guide development of locally appropriate plans and implementation arrangements and detailed work plan for zonal, district and community levels.

RBM Partners: A basis for identifying and developing strategic roles to fill gaps in technical and resource inputs critical for the attainment of the goal

For Academic and Research Institutions: To identify problems and to design and implement research activities that are fit to the local conditions (representativeness & standard of protocol) so that the findings will have the quality to be used to influence policy.

For Private Sector: To explore feasibility and investment needs for the local production of malaria commodities (drugs, ITNs, etc) through joint venture or other means of commercial arrangement.

2. Methodology of Development

This strategic plan was developed based on regional review of the previous strategic plan taking into consideration the level of implementation and achievements and the regional plans for the next five years (2006 – 2010).

3. Scope

This document as part of the overall malaria control strategic plan includes the vision, mission, mandate, values, situation analysis, goals and strategic objectives of the department in relation to the expansion of the Insecticide Treated Nets in the region, further the document indicates the monitoring, evaluation and indicators of the program, budget implications and quarterly schedule for the implementation of the strategic plan.

4. Goal

- a) To contribute to MDGs goal 6 target 8 by reducing the overall burden of malaria (mortality and morbidity) by 50% by the year 2010, as compared to the baseline level in 2005,
- b) To contribute to the reduction of child mortality (MDG Goal 4) and Improved maternal health (MDG Goal 6),

5. GENERAL OBJECTIVES

The major objectives intended to be achieved during and by the end of the planning period will include:

1. At least 90% of those suffering from malaria will have access and use effective treatment within 24 hours of the onset of symptoms.
2. 100% households in malarious areas will have at least one ITN.
3. At least 90% of children under 5 and pregnant women will be sleeping under ITNs by 2010.
4. At least 60% of localities in epidemic-prone areas will be sprayed annually with indoor residual insecticides.
5. Epidemic events will be detected in at least 80% of affected localities within two weeks from onset and response measures initiated within one week after detection by 2010.

6. Indicative Five Year Budget 2006 – 2010

The total budget required for five years is estimated at US\$341,592,387. The budget will be utilized for case management (33.3%), Vector control (56%), Epidemic prevention & control (4.9%), IEC/BCC (1.2%), Training & capacity building (0.03%), Operational research (3%), monitoring and evaluation (0.9%) and administrative costs (0.8%). Based on this indicative plan, detailed annual plans will be prepared by each region and resource that will be mobilized will be distributed to regions based on the population at risk. Any under spent budget of during the implementation year will be moved and redistributed over the next year (s).

Table 1- Indicative Budget Requirement (2006 – 2010)

No	Component	2006	2007	2008	2009	2010	Total
1	Case management	55,499,330	48,664,166	46,789,100	41,629,534	34,873,926	227,456,056
2	Selective vector control	62,239,904	69,123,768	44,055,094	72,203,598	134,979,780	382,602,144
3	Epidemic prevention & control	7,661,800	6,371,800	6,371,800	6,371,800	6,371,800	33,149,000
4	IEC & behavioral impact	3,769,734	1,028,000	1,028,000	1,028,000	1,028,000	7,881,734
5	Capacity building	1,971,600	1,091,600	1,091,600	1,091,600	1,091,600	6,338,000
6	Operational research	0	100,000	0	0	100,000	200,000
7	Monitoring & Evaluation and Program Management	3,811,600	5,208,560	3,602,560	3,302,560	4,302,560	20,227,840
8	Implementation arrangements & coordination	4,530,000	200,000	200,000	200,000	200,000	5,330,000
GRAND TOTAL		139,483,968	131,787,894	103,138,154	125,827,092	182,947,666	683,184,774

7. Focus of the Strategic Plan

The strategic plan provides a detailed account on the status and direction of the major malaria prevention and control strategies that include early diagnosis & treatment, selective vector control and malaria epidemics prevention and control and supporting strategies that include IEC & Social mobilization, human resources development, health management & information system, monitoring and operational studies. For each of the major and supporting strategies which is described separately, general objectives, operational targets and opportunities and challenges including the budget need are indicated.

7.1 Situation Analysis & Strategic Directions

7.1.1 Early Diagnosis and Effective Treatment

Early diagnosis and effective treatment remains the most important intervention in terms of its contribution in preventing mortality and reduction of the incidence of severe illness. Based on evidence collected in 2003, Ethiopia introduced the use of Artemisinin based combination therapy as first line treatment for falciparum malaria in July 2004 and full implementation was started in early 2005¹⁵. Currently, implementation of the new policy is at health facility level and has reached a nationwide coverage.

Malaria diagnosis in health facilities is largely based on clinical diagnosis. Microscopic diagnostic facilities are available only at public health centers and hospitals and in higher private sector health

facilities. The laboratory based service is estimated to be accessible to about 30% of the total fever episodes. The introduction of Rapid diagnostic tests (RDTs) in 2005 is expected to have offered opportunity to expand diagnosis services at peripheral levels²³

The major challenge in the provision of early diagnosis and treatment services remains to be the low access to basic health service and utilization. The high cost of anti-malarial drugs and diagnostic facilities in an environment of a developing economy is also expected to pose a serious threat.

The accelerated expansion of health services and deployment of the Health Extension Workers (HEWs) will provide the opportunity to expand malaria early diagnosis and treatment services to wider areas. In addition the support the country is obtaining from the GFATM and other RBM partners and donors, will be enabling for the accelerated expansion of services.

The strategic direction is to ensure adequate supplies of ACT and diagnostic services and to strengthen the HEW to provide early diagnosis using RDTs and treatment with ACT in all malarious areas.

7.1.2 Selective vector control

The two most important vector control activities implemented in the country include In-door Residual Spraying (IRS) and Insecticide Treated Net (ITNs). IRS is the only and major intervention applied to pre-empt and control malaria epidemics in malaria epidemic prone areas. Insecticide Treated Nets (ITNs) are targeted for area with longer period of transmission, which in Ethiopia, is for a period of three months and above. Other vector control measures such as environmental modification for mosquito breeding source reduction and larviciding are also widely used. The role of these methods in light of the water conservation schemes in the country and the expansion of irrigated agriculture need to be well tailored.

The exercise of targeting areas for IRS is based on reclassification of localities in to 0, 1 or 2 spray rounds based on their historical data on malaria and other risk factors such as drought, flooding or population influx. The annual coverage of IRS on average is roughly estimated at about 20-30% of epidemic prone areas. Regional Health Bureau (RHB) reports show an average annual coverage of 20% of the epidemic prone areas over the past five years. The target of IRS over the coming years (2006 – 2010) is to achieve 60% coverage of the malaria epidemic prone districts.

Targeting of localities for ITNs has also been based on the length of transmission of malaria in the malarious localities. In some areas that receive the short rains from March – April, there is additional short transmission season, which is not temporally contiguous with the major transmission season from September- December. The ITNs coverage to date is estimated to have covered 24% of households with at least one ITN. However, in light of the family size in Ethiopia and the need to ensure adequate protection, the target for ITNs in the next five years (2006 – 2010) is to achieve distribution of 2 ITNs per household (on average) in 90% of the ITNs targeted areas by 2007.

The application of two or more interventions in the same target area needs to be clearly decided based on local epidemiological evidence and in line with the Integrated Vector Management (IVM) approach. The application of environmental management measures and application of larvicides will be decided based on the nature of the breeding sites. For small water conservations schemes, construction of roofing depending on the size of scheme and/or application of larvicide will be strengthened.

15 FMOH (2004) Malaria diagnosis and Treatment guideline for Health workers in Ethiopia.

Distribution of ITNs will follow a segmented market approach with free distribution of ITNs through the public sector to vulnerable social groups and new settlements in high-risk area and through the subsidized and market operated distribution system in other areas. The application of Indoor Residual Spraying (IRS) will also be free of charge in all targeted community villages except commercial institutions where the budget should be met by the respective institutions.

Lack of effective utilization of vector control tools at individual and community level is a serious problem that require regular follow-up. Therefore, community education and awareness creation on regular use of ITNs, mending damaged ITNs and preventing re-plastering of insecticide sprayed surfaces will be given due emphasis.

7.1.3 Epidemic Prevention and control

The malaria epidemics prevention and control target set to be achieved by the end of 2005 was detection and containment of 60% of the malaria epidemics within two weeks from onset. However, regional reports indicated that on average only 31% (range 5 to 65%)²⁴ of the epidemics were detected and fully contained within two weeks. The declared containment of the epidemics was not actually supported by a post-epidemic assessment report.

The malaria epidemics prevention and control guideline revised in 2003, emphasizes on the use of malaria monitoring norm charts, timely notification of abnormal situations by health facilities and verification by district health office for timely action. To ensure coordinated monitoring and response, the need to ensure adequate preparedness plan at district level is also important.

In addition to the health facility and district based monitoring of malaria for timely action, health facility based data collection and reporting through the Integrated Disease Surveillance (IDS) system is also implemented. However, the IDS system, which usually captures data from health, centers and above is usually aggregated and lacks the essential breakdown by area, which is important for targeting localities at higher risk.

Therefore the issue of gathering surveillance data through the IDS system in such a way that it captures data from most peripheral health facilities including community based approaches needs to be strengthened.

Based on the magnitude of the problem and the need to address it in a coordinated manner, the malaria epidemics prevention and control objective intended to be achieved by the end of 2010, is to build capacity that will help achieve detection and containment of 80% of the malaria epidemics with in two weeks from onset.

Timely reporting of malaria epidemics in a situation where preparedness is not fully assured is of critical importance to ensure timely request for emergency support by the Federal Ministry of Health. It is only based on such reports that Regional Health Bureaus (RHBs) and the FMOH will be able to declare the problem. Therefore, peripheral health facilities should be primarily responsible to notify any emergence of unusual increase in the number of malaria cases to the District Health Office (DHO), which in turn must confirm and notify to the respective Regional Health Bureaus (RHB) for additional support.

10 FMOH (2006) Proceedings of the RBM Review & Planning Meeting 11 – 13 January 2006
14 FMOH (2002) Ethnographic Survey on Malaria

7.1.4 IEC/BCC on malaria

Although no recent surveys have been done on malaria knowledge, attitude and practice (KAP), previous studies conducted in 2002 indicated that the level of community awareness on malaria illness, its treatment, prevention and control is generally higher in areas where malaria is more common than in areas where transmission is generally low¹⁴.

During the 2001 – 2005 periods, various health education materials have been prepared and distributed by regions. These include health education messaging through radio, TV broadcast and printed materials. More than 118, 000 posters, 90,000 leaflets have been distributed and around 100 radio sessions and 90 TV spots were aired.

Due to low coverage of radio and TV and the high illiteracy rate of (60%, i.e, 52% males and 67% females never attended any school) these methods may not reach the majority of the population in rural areas. Therefore additional methods of disseminating health education will be incorporated to ensure their effectiveness.

Community sensitization meetings carried in various areas in connection to distribution and use of ITNs has been instrumental in disseminating information on malaria. This approach will be developed and strengthened during the implementation of this strategic plan.

For the achievement good level of KAP on malaria which in turn improves appropriate utilization and adherence to the interventions applied, targeted and pre-tested health education messages developed in the context of the culture and social conditions of the targeted community will be emphasized. For the achievement of these objectives, a malaria communication strategy will be developed based on the national health communication strategy.

7.1.5 Human resource development

The pioneer staff of the malaria program in Ethiopia were mainly trained in the Nazareth Malaria Training Centre established in the late 1950's during the era of Malaria Eradication Service. Other members that joined the program, university or high school graduates alike, were also given an on-the job training and field practical attachment for a period of up to one year before they were given a permanent assignment.

This system was running until the decentralization of the health services in 1993 and integration of the malaria prevention and control activities in to the general health service system. Following the decentralization of the health service system and integration of malaria control in to the basic health service, the organization and staffing of malaria prevention and control units at regional, zonal and district level was not done up on a defined standard.

The discontinuation of the specialized training on malaria and the lack of incorporation of the basic malariology course in to the training curricula of health worker further aggravated the trained manpower shortage. To cope with the problem some Regional Health Bureaus (RHBs) started local training of junior vector control technicians. This effort was then interrupted due to the lack of carrier structure for technicians trained in such arrangements.

The effort to incorporate the basic malariology training in to the training curricula of health workers has not yet materialized. However, malaria training module packaged with other health programs has been well incorporated in to the training modules of health extension workers. This progress is

believed to make a significant contribution to malaria prevention and control as the service provided by these group of health workers is the closest to the community and is covering a progressively wider geographic area which will eventually reach 100% of the rural population by the end of 2008.

The staffing and administrative autonomy the malaria prevention and control program deserves at regional and district level is expected to be addressed by respective Regional Health Bureaus (RHBs).

It is believed that the guiding principle in deciding the structure and staffing for malaria prevention and control units at different levels will be based on the magnitude of health problem caused by malaria and the effort and volume of work required to achieving significant impact.

7.1.6 Health Management & Information System

Following the decentralization, reporting of malaria prevention and control activities at district and regional level in terms of completeness, relevance and timeliness has not been consistent. Cognizant of this lack of standard, the FMOH with technical support from WHO launched pro-active data collection survey covering 80% of health facilities for the period 1998 – 2002 in a bid to cover the information gap and to re-install reporting based on a standardized data collection tool.

To strengthen the data base system, computerized data entry system was developed and training given to RHBs including on Microsoft- Access 2000, HealthMapper and EpiInfo-2000. However, the data entry is not yet fully completed in all regions and the continuity of the system has been seriously challenged by human resource shortage needed to collect and report the data. Because of this, the Health Management and Information System at FMOH received only annual reports on malaria related cases and deaths with out including implementation status on malaria prevention and control activities implemented.

In a bid to solve this problem, the FMOH malaria team is now trying to get adequate programmatic implementation reports from RHBs not only through the HMIS system but also vertical reports directly addressed to the team. In addition to this RHB reports in annual review meeting has been used as one means of capturing data on malaria prevention and control activities.

According to the regional reports, at least two annual review meetings and 2-4 regular supportive supervision activities have been reported to be conducted annually at national, regional and district levels .

7.1.7 Monitoring and Evaluation

The national five year (2001-2005) national strategic plan consists of a total of 39 (10 impact, 10 outcome and 19 process) indicators. The number of indicators that will be used during the 2006 – 2010 planning period are indicated in Table 2.

Due to lack of first hand regional HMIS reports and lack of RBM follow-up survey, the malaria program M & E is now relying on information gathered through other sources such as the DHS. In the recently completed EDHS 2005, data required to evaluate some of the core RBM indicators were collected. However, preliminary results of this survey indicated that only 5.7% of the total households living in all altitudes with at least one mosquito net and 3.3% with at least one insecticide treated net. In residents living below 1500 m altitude, the percentage of households with at least one mosquito net has been shown to be around 20% and for ITNs 10.1%. Percentage of patients with fever treated

within two weeks before the survey was found to be 3% among residents in all altitude and 5.6% in residents <1500 m altitude.

Among these, the percentage of patients treated within 48 hours of the onset of fever was generally below 2%. In all cases, there were significant differences between urban and rural areas. The report also indicated about 0.3% IPT usage during antenatal visits from the total of 11% pregnant mothers who took some type of anti-malarial drugs for the treatment of malaria during pregnancy.

As these findings are preliminary, further analysis of the data is expected to provide refined information and specific information including area where IPT has been reported. Comment has also been forwarded to the DHS authors group to adjust the altitude of malarious area from 1500 to 2000m. Considering all areas below 2500 m as malarious, however, will be as similar to the data collected from the entire country. Moreover, malaria in altitudes as high as 2500 is not a regular event but phenomenon usually seen during cyclic large scale epidemics usually associated with global climatic anomalies.

Table 2. Monitoring and Evaluation Indicators (2006 – 2010)

Measure	Core Indicators	Baseline (2005)	Target (2010)	Data Source & Collection Interval	Primary Responsible Unit
Outcome	Percentage of children U5 with fever in last 2 weeks who received treatment (per guideline) within 24 hours from onset of fever	5%	90%	2-3 yrs, Community Survey (CS)	DHO, RHB, FMOH & Partners
	Percentage of epidemic affected <i>kebeles</i> where epidemics were detected within 2 weeks of onset and properly controlled	5%	80%	2-3 yrs Management Survey	DHO, RHB, FMOH & Partners
	Percentage of households with at least one ITN in target districts	98%	100%	2-3 yrs CS	DHO, RHB, FMOH & Partners
	Percentage of pregnant women who slept under an ITN the previous night in target districts	2%	90%	2-3 yrs CS	DHO, RHB, FMOH & Partners
	Percentage of children <5 years old who slept under an ITN the previous night, in target districts	2%	90%	2-3 yrs CS	RHB, FMOH
	Percentage of epidemic prone localities receiving timely (IRS)	20	60%	Indoor Residual Spraying Report (IRS)	RHB, FMOH
Impact	Morbidity attributed to malaria	22%	10%	HFS, CS	RHB, FMOH & Partners
	Mortality attributable to malaria: case fatality rate U5	5.2%	2%	HFS, CS	RHB, FMOH & Partners
	Case fatality rate in age groups 5 years and above	4.5%	2%	HFS, CS	RHB, FMOH & Partners

7.2 Operational Research (OR)

A number of operational studies have been conducted over the last five years. Most of the studies were conducted by the Federal Ministry of Health, Regional Health Bureaus (RHBs), Research Institutions and NGOs. The coordination of the research work to ensure application of agreed protocol and representative area selection has been weak that findings from different research works were not utilized properly.

A number of operational studies have been completed and some studies are still ongoing. Based on the range of operational studies conducted and the ones in progress, the research issues that will be considered for implementation in the period from 2006 – 2010 will be identified by the MCTS in collaboration with RHBs and research institutions. In addition to this, operational studies that are relevant to the context of the regions should be supported technically and financially so that the regions will be able to apply interventions which are well suited to the local circumstance.

Accordingly the studies proposed for implementation will focus on the following:

- a. Case Management
 - i. Community deployment of ACTs and RDTs
 - ii. Adherence to treatment with ACTs
 - iii. Malaria Diagnosis and Treatment Service utilization pattern,
 - iv. Monitoring of *P.falciparum* and *P.vivax* resistance to antimalarial drugs
- b. Vector Control
 - v. Insecticide efficacy,
 - vi. ITNs coverage and utilization
 - vii. Identification of awareness gaps and monitoring of behavioral changes on malaria disease recognition and use of preventive and control measures such as re-plastering rate of IRS, use of ITNs,
 - viii. Stratification and mapping of malaria risk areas for better targeting and timing of antimalarial interventions
- c. Other (improving malaria prevention and control services in the pastoralist area, pre-testing and development of health education materials and other relevant operational studies).

8 Objectives, Target and Indicators (2006 – 2010)

8.1 Early Diagnosis & Treatment

a) **Goal Statement:** Increase access to high quality malaria diagnosis and treatment services at all levels of the health system.

b) Implementation Approaches

- Improved quality of case management in public and private health facilities,
- Strengthening and expansion of community based service through Health Extension Workers and trained community health agents towards home based services,
- Improved drug management system at public and private health facilities,
- Expand diagnostic services including the use of Rapid Diagnostic Test (RDTs) in remote areas and for epidemic investigation,
- Update the malaria diagnosis and treatment guideline based on local evidences.

No	OBJECTIVE	ACTIVITIES	TARGETS	INDICATORS
1	To achieve & maintain 90 % access to high quality malaria diagnosis and treatment at all levels of the health system by the end of 2008 as compared to the 4% coverage in 2005,	<ul style="list-style-type: none"> • Training of Trainers for malaria diagnosis & treatment • Conduct regular refresher training for health workers on malaria diagnosis & treatment • Procurement & distribution of anti-malarial drugs, • Procurement and distribution of laboratory diagnostic facilities, • Strengthen pharmacovigilance on ACT • Review of diagnosis and treatment guidelines as appropriate • Scaling up of HBCM approach with ACT 	<ul style="list-style-type: none"> • Train at least two trainers per district (1000) • 100 % of the health facilities will have adequate supply of anti-malarial drugs with no stock out for more than one week by 2008, • Treat 100% of the malaria cases based on confirmed diagnosis by 2008, • All health facilities will conduct pharmacovigilance of ACT 	<ul style="list-style-type: none"> • Number of functional ToTs per district • % health workers trained on malaria diagnosis and treatment, • % health facilities with no stock out of anti-malarial drugs, • % malaria cases treated based on confirmed diagnosis • % Health facilities conducting Pharmacovigilance

8.2 Selective Vector Control

a) **Goal Statement:** Achieve and maintain high coverage in the major vector control measures in all malarious areas where the service is required.

b) Implementation Strategies

- Improve timing, targeting and coverage of In door Residual Spraying (IRS) based on evidence,
- Ensure & maintain accelerated expansion for total coverage and use of Long-lasting Insecticide Treated Nets (LLINs) in targeted areas,
- Application of environmental management and chemical larviciding in suitable targets,

No	OBJECTIVE	ACTIVITIES	TARGETS	INDICATORS
1	<ul style="list-style-type: none"> • 100% households in malarious areas will have at least one ITN. • At least 90% of children under 5 and pregnant women will be sleeping under ITNs by 2010. • At least 60% of localities in epidemic-prone areas will be sprayed annually with indoor residual insecticides and other larval control measures. 	<ul style="list-style-type: none"> • Maintain up-to-date data on ITNs distribution, coverage & utilization status, • Conduct community mobilization activities (conduct malaria weeks??) • Strengthen data base system for reclassification of localities by spray rounds, • Strengthen IRS services in targeted districts 	<ul style="list-style-type: none"> • All households in ITNs targeted localities receive at least one ITNs, by 2007 • At least 90% of children under 5 and pregnant women will be sleeping under ITNs by 2010. • 60% of epidemic-prone localities will be sprayed by 2010 	<ul style="list-style-type: none"> • % Households in targeted areas with a least one ITNs, • % of children under 5 and pregnant women sleeping under ITN the night before the survey • % of localities in epidemic prone areas annually sprayed • % Unit structures sprayed • Area of mosquito breeding site positive for larvae sprayed with chemical and physical methods, • Number of people participating in environmental management activities for vector breeding source reductions,

8.3 Epidemics prevention and control

a) **Goal Statement:** Strengthen malaria epidemics early warning, detection, prevention and control capacity at all levels of the health system.

b) Implementation Strategies

- Introduce a practical system for epidemics early warning system and early detection,
- Assurance of epidemic monitoring & preparedness system at all levels
- Strengthen capacity for rapid response to epidemics and timely completion of post epidemic assessment,

No	OBJECTIVE	ACTIVITIES	TARGETS	INDICATORS
1	<ul style="list-style-type: none"> • Epidemic events will be detected in at least 80% of affected localities within two weeks from onset and response measures initiated within one week after detection by 2010. 	<ul style="list-style-type: none"> • Conduct training of health workers on malaria epidemics monitoring, preparedness and response, • Strengthen use of malaria monitoring charts in all health facilities, • Collaborate with the IDS unit at all levels to ensure better integration of malaria surveillance through the IDS system, • Ensure adequate preparedness plan at district level in all malarious districts, • Conduct resource mobilization to support epidemic preparedness of regions and districts. 	<ul style="list-style-type: none"> • Train at least two trainers per district (1000) who will train other health workers on malaria epidemics monitoring, preparedness and response • Provide malaria monitoring charts to all health facilities, • Ensure epidemic preparedness in 100% of the malaria epidemic prone districts, • Mobilize US\$5 million each year to support epidemics preparedness and response capacity of regions. 	<ul style="list-style-type: none"> • % health facilities using norm charts with updated data, • % of epidemic affected villages detected within two weeks and response measures initiated within a week from the onset,

8.4 Malaria prevention and control in pregnancy

a) **Goal Statement:** Strengthen malaria prevention and control during pregnancy by delivering locally feasible measures through the integration of the service in ANC clinics and community-based services.

b) Implementation Strategies

- Strengthen malaria prevention & treatment services in routine Ante-natal care (ANC)
- Provide with priority LLINs to pregnant women in areas at risk of malaria through ANC clinics and vaccination campaigns

No	OBJECTIVE	ACTIVITIES	TARGETS	INDICATORS
1	To strengthen malaria prevention and control services provided to pregnant women in 90% of the ANC clinics by 2010,	<ul style="list-style-type: none"> • Training of health workers on malaria prevention and control in pregnancy • Strengthen malaria diagnosis and treatment supply in ANC clinics, • Provision of ITNs to ANC clinics, • Distribute ITNs to pregnant mothers through other community based delivery mechanisms 	<ul style="list-style-type: none"> • Train at least two trainers per district (1000) who will train other health workers on malaria prevention and control during pregnancy, • Achieve 100% access to free ITNs for pregnant mothers 	<ul style="list-style-type: none"> • % health workers trained on malaria diagnosis, treatment & prevention during pregnancy, • % pregnant mothers who received free ITNs

8.5 Human Resource Development

a) **Goal Statement:** Build human resource capacity to ensure implementation of planned malaria prevention and control activities.

b) Implementation Strategies

- Conduct in-service training for health workers with special emphasis to peripheral health workers and district, zonal and regional health office experts,
- Conduct regular refresher training for health extension workers and community health workers including Traditional Birth Attendants (TBAs),
- Incorporate essential malariology courses in pre-service training curriculum of the health workers,

No	OBJECTIVE	ACTIVITIES	TARGETS	INDICATORS
1	Conduct regular in-service training of health workers at all levels and strengthen pre-service training by incorporating basic malariology in the training curricula of health workers,	<ul style="list-style-type: none"> • Conduct regular pre-service training for all category of health workers, • Refresher training to HEW trainers, • Update teachers in health training institutions on malaria prevention and control guidelines in country, • Training for district , zone and region level program experts on program management 	<ul style="list-style-type: none"> • Train at least two trainers per district (1000), • Train 100% of the HEW trainers in all HEW training institutions, • Train 100% of the teachers in health training institutions, • Finalize incorporation of basic malariology in to the training curricula of health workers, 	<ul style="list-style-type: none"> • % health workers trained • % HEW trainers trained, • % of health training institution teachers trained, • Completed training curricula,

8.6 Information Education Communication (IEC)

a) **Goal Statement:** Strengthen information, education and communication for behavioral change beneficial for malaria prevention and control

b) Implementation Strategies

- Development of multi-channel capacity for IEC/BCC at various levels of the health system, including use of traditional message dissemination methods,
- Develop locally suitable pre-tested educational materials,
- Develop health messaging materials for social mobilization and advocacy

No	OBJECTIVE	ACTIVITIES	TARGETS	INDICATORS
1	At least 80% of households in malarious localities will have awareness on key malaria prevention and control measures	<ul style="list-style-type: none"> • Design health education messages, • Pre-test health education messages • Disseminate information through multi-channel approach (leaflets, radio & TV messages ...) • Conduct regular community awareness campaigns through the Africa Malaria Day in April and the Malaria Week in August 	<ul style="list-style-type: none"> • By 2010, 80% of households in malarious localities will have awareness on malaria prevention and control measures through implementation of key IEC/BCC strategies. • Conduct community sensitization campaigns twice a year for one week each, 	<ul style="list-style-type: none"> • % of households in malarious localities that have adequate awareness on key malaria prevention and control measures • % health education messages prepared and disseminated, • Number of community mobilization conducted

8.7 Operations Research

a) **Goal Statement:** Conduct operational studies based on well agreed protocol, disseminate findings and incorporate recommended changes in the service delivery guidelines.

b) Implementation Strategies

- Select operational research topics that are relevant to the interventions applied in collaboration with research institutions and the Malaria Control Support Team (MCST),
- Cooperate with research institutions interested in applied research which is relevant to the malaria prevention and control activities relevant to the country,
- Develop good quality study designs to ensure representativeness and use of standard protocol to maximize the use of findings and recommendations for the development and/or refinement of guidelines,
- Soliciting financial and technical support for operational studies.

No	OBJECTIVE	ACTIVITIES	TARGETS	INDICATORS
1	Conduct operational studies relevant to local condition and utilize findings to strengthen malaria prevention and control activities,	<ul style="list-style-type: none"> • Identify research issues of top priority in collaboration with MCTS, RHBs and research institutions • Prepare and distribute standard study protocols, • Conduct training on study conduct, • Mobilize resource required to conduct the studies, • Conduct the studies and ensure timely completion. • Conduct regular insecticide efficacy tests 	<ul style="list-style-type: none"> • Complete at least ten operational studies on case management, selective vector control, and IEC/BCC strategies activities in collaboration with RHBs and research institutions by the end of 2006 and 2010 	<ul style="list-style-type: none"> • Number of operational studies completed

8.8 Health management and Information System & Monitoring and Evaluation

a) **Goal Statement:** Ensure timely data collection, analysis and reporting for appropriate planning and evaluation of service delivery at all levels of the health system.

b) Implementation Strategies

- Strengthen malaria surveillance system through the integrated disease surveillance (IDS) system,
- Integration of the malaria information system with the routine health management and information system
- Contribute to the strengthening on capacity of both IDS and HMIS at various levels,
- Conduct regular training to improve local capacity for data collection, analysis and interpretation as well as informed decision making at various levels.
- Conduct community and health facility surveys to determine progress in terms of coverage and quality of services, as well as impact on disease burden.

No	OBJECTIVE	ACTIVITIES	TARGETS	INDICATORS
1	Strengthen information management system at all levels of the health system to improve evidence-based decision-making.	<ul style="list-style-type: none"> • Refine reporting and ensure standardization of reporting formats, • Training of health workers on malaria data base management, • Equip districts and RHBs with computers and accessories, 	<ul style="list-style-type: none"> • 100% of district, zonal & RHB HMIS and malaria experts trained on malaria data collection, analysis, interpretation and reporting, • 50% of the districts will have a computer based database on malaria, • 100% of the RHBs will have their data base networked at national level, 	<ul style="list-style-type: none"> • % health workers trained, • % districts with computer based data base, • % RHB database system networked to the national level.

CHAPTER IV: INSTITUTIONAL FRAMEWORK, PARTNERSHIP AND COORDINATION MANAGEMENT STRATEGIES

The malaria control program operates within the regular framework of government structure and procedures. The program functions in line with the National Health Policy of 1993, the Health Sector Strategy of 1995 and HSDP of 2006-2010.

1. Policy Environment

The health sector program in Ethiopia is guided by a twenty-year health sector development program (HSDP) that was first launched in 1997. The HSDP is implemented based on five-year program and the first phase of HSDP was completed in 2002 (1994 EFY). The second phase will be completed in June 2005 (1997 EFY). Following completion of the second phase, the third phase of the HSDP for the period 2005 – 2010 has been developed and will be implemented starting June 2005²⁵.

The HSDP employs a sector- wide approach to achieve the health development objectives. The objective of the HSDP is to provide comprehensive, integrated and cost effective primary care services, with a focus on communicable diseases, nutritional disorders, environmental health and hygiene, reproductive health, immunization and the control of infectious diseases, such as ARI, malaria, and STDs, especially HIV/AIDS.

The HSDP has a major component that aims to promote health service delivery and quality of care that covers preventive, promotive and curative aspects of health care. As part of this system, the malaria prevention and control service is designed to be delivered through an integrated approach that heavily relies especially on peripheral health services where the health extension workers (HEW) and trained community health workers (CHWs) are the main service providers.

The main strategies such as case management, epidemic prevention and control, vector control, malaria prevention and control in pregnancy, and pharmaceuticals are treated within the service delivery and quality of care, which is one of the essential components of HSDP. Other supporting strategies such as human resource development, information, education and communication, operational research, health management information system, and monitoring and evaluation associated with malaria are described in the this document according to HSDP.

25 FMOH (2005) Health Sector Strategic Plan 2005/6 – 2009/10

2. INSTITUTIONAL FRAMEWORK AND RESPONSIBILITIES

Full implementation of the five-year strategic plan requires active involvement and participation of all partners from community level to central level. The health care system of Ethiopia follows the federal structure, with the federal Ministry of Health at the apex.

Community Level

The active involvement of the community in planning and implementing of all control activities will be very crucial. In this process, peripheral health workers, CHWs, TBAs, opinion and religious leaders, agricultural development worker, teachers, women and youth associations, and community development organizations will all be involved under the leadership of elected community (kebele) leaders. This will form a kebele RBM taskforce. The key functions will be to educate and inform communities to participate in the prevention and control activities and will guarantee a sense of ownership. These groups will also be involved in the provision of basic malaria prevention and control packages, such as early diagnosis and treatment, IRS, ITNs, and IEC based on the detailed district action plan.

Health Facilities: (Health Centers, Clinics, Health Posts, Malaria Control Sector Offices, Malaria Control Laboratories)

According to the National Health Sector Strategy, all vertical programmes of the past will be integrated into the general health services. No specialized program will function in a vertical manner. However, the MSO of the former vertical program are still functioning in some regions during the transition period, as malaria control activities such as IRS and epidemics control are very crucial in the Ethiopian setting and the other facilities are not yet ready to take over these responsibilities. Based on regional contexts, the MSO or other health facilities will be strengthened to effectively implement IRS and epidemic control. Other roles such as disease management, epidemic monitoring and control, IEC, ITNs, and other vector control measures will be implemented by all health facilities.

District (wereda) Level

The RBM task force will be established at the district level and will be responsible for the coordination of all partners and the implementation of malaria control activities. The district administrative council, particularly those responsible for social affairs, will be involved in the creation of active and sustainable partnerships at the district level. It will also be involved in working out a detailed work plan for malaria control particularly an epidemic preparedness plan, in close collaboration with the District/Wereda Health office (DHO). The main task of the District RBM Task Force will be to support the community level structures and health facilities. The DHO should be strengthened with the necessary manpower and logistics to guide the task force and support both private and public sector health care providers.

Zonal Level

At the zonal level, there is the MOVDPCT. The main responsibility of the MOVDPCT is to ensure the continuous availability of adequate essential supplies required for the different strategic approaches to malaria control. Other responsibilities include stratification of the zone into eco-epidemiological areas for better targeting of vector control interventions. The RBM

taskforce at this level will be responsible for support of district level taskforces. The zonal MOVDPCT with the support of the RBM task force ensures the availability of manpower, equipment and supplies in districts and coordinates resources of the different partners mainly during epidemic control. The zonal MOVDPCT is also responsible for ensuring timely compilation, reporting, and analysis of data, as well as its use for decision-making and quick action.

Regional Level

At regional level, a taskforce for RBM will be established to coordinate all malaria control activities in the region. It will be responsible for resource mobilization at the regional level and support zonal RBM task forces. At the region level, there is RMOVDPCD, which is responsible for planning various malaria control measures based on the National Strategic Plan and specific to different eco-epidemiological types in the region. This body is responsible for implementation and monitoring and evaluation of malaria control activities. Currently, the RMOVDPCDs are not fully staffed by an appropriate mix of health professionals. Attempts should be made to fill all the vacant seats with professionals. The RBM training that has been carried out in the country could be exploited to upgrade the knowledge and skills of the professionals to be placed in these structures.

Central Level- Federal Level

At the federal Ministry of Health level, MOVDPCT is under the Diseases Prevention & Control Department, The main responsibilities of the MOVDPCT include co-coordinating and capacity building, formulating and disseminating malaria policy and technical guidelines, revision of RBM strategic components (diseases management, selective vector control, epidemic prevention and control, prevention and control malaria in pregnancy), overseeing policy implementation, monitoring and evaluation of impact, and advocate for malaria as a priority disease.

3. PARTNERSHIP and Coordination

The social, economic and environmental problems posed by malaria exceed the jurisdiction and capabilities of Ministry of Health. The whole philosophy of RBM is based on coordinated action and partnership. Therefore, establishment of effective partnerships is essential to the success of the RBM program objectives. In order for partnerships to function and be sustainable, they must be institutionalized and recognized by political and administrative bodies at various levels. Partnerships will be established with various departments within the MOH, as well as sectors outside of health. The kind of partnerships established so far and required for RBM implementation at various levels are outlined as follows:

The MCST was established in 1998 to respond to the on-going epidemics. After initiation of the global RBM movement, the MCST was retained as the central level RBM task force. The team is composed of WHO, UNICEF, UNDP, USAID and the World Bank. This committee should be expanded to include the following stakeholders:

- Ministry of Agriculture: to mobilize extension workers involved in community based agricultural activities who in turn can mobilize communities for malaria control.
- Ministry of Finance: tax reduction on ITNs, mobilization of resources and improved resource utilization.
- Ministry of Water Resources and Development: incorporation of malaria preventive measures in water development projects.

- Meteorological Agency: epidemic forecasting and early warning.
- Ministry of Education: incorporation of malaria control in school curricula and malariology courses in the curriculum of pre-service health training institutes.
- Ministry of Information and Mass Media Organizations: IEC.
- Research Institutions and Universities: operational research.
- Investment Office, Environmental Protection: incorporation of malaria preventive measures in construction activities and environmental development projects.
- Disaster Prevention and Preparedness: information on natural disasters, mass population movement.

Within the MOH

Planning and Programming Department (HSDP), Administration and Finance Services, IMCI, Family Health Department, Safe Motherhood Initiative, HMIS, IDS, Environmental Health, Drug Administration and Control Authority, Health Education Center.

Private Sector

Partnership with private sector will be promoted. The private sector can particularly be involved in disease management, distribution of ITNs, and in many different areas that can influence malaria transmission. Close working relationships will be created with the private sector to involve them in the implementation and support of malaria control programs.

Donors, NGOs, and religious groups

- Bilateral and multilateral agencies: resource mobilization and technical support.
- Local and International NGOs: to assist in the coordinated implementation of the plan of action and support to local level malaria control efforts.
- Religious groups: IEC and community mobilization.

4. IMPLEMENTATION OF THE STRATEGIC PLAN

Annual plans of actions will be developed at various levels starting from district to national level. The annual plans must be tuned towards the accomplishment of the objectives and targets stated in this strategic plan. There is a need for planning and budgeting skills for malaria control at all levels.