



THE REPUBLIC OF UGANDA

# **MALARIA CONTROL STRATEGIC PLAN**

**2001/2-2004/5**

**Malaria Control Programme  
Ministry of Health  
Kampala.**

## FOREWORD

The Malaria Control Strategic Plan is an instrument of the Government's commitment and determination to address the malaria problem in Uganda in a sustainable manner. The plan is a complement to the broader five-year Health Sector Strategic Plan of the MOH and the Poverty Eradication Action Plan where malaria features as a high priority health and poverty issue. Currently the incidence and impact of malaria is worsening. Over ninety percent of the country is malaria endemic with all year round transmission. The remaining five percent has low transmission with unstable malaria and, therefore, is prone to malaria epidemics. In health facilities, malaria accounts for about 15 - 40% of outpatient attendances, about 9 - 14% of inpatient deaths and a case fatality rate of 4%. Many die before reaching health facilities. The malaria parasites are becoming increasingly resistant to the commonly available and cheap anti-malarial drugs in the country. In the recent past malaria epidemics have become more frequent especially in south-western Uganda.

In the strategic plan certain targets, intervention strategies and enabling strategies have been identified and will serve as tools to guide planners, administrators and implementers at all levels of health care delivery in Uganda in the process of the implementation of the malaria component of the minimum health care package.

This plan has been based on the principles and aims of the global RBM movement and the Abuja Declaration by African Heads of State. It advocates for inclusive partnerships between the Ministry of Health, the line ministries, civil societies, non-governmental organisations, development partners and the private sector in order to achieve the set objectives and targets.

However, in order to achieve these targets, significant resources will be required to translate the commitment into effective action in order to achieve sustainable malaria control in Uganda.

F.G. Omaswa  
Director General Health Services

## **ACKNOWLEDGEMENTS**

The Ministry of Health wishes to acknowledge with thanks the support and contribution from the development partners, the non-governmental organizations and individuals who have contributed in one way or another in the development of the Malaria Control strategic Plan 2001/2-2004/5.

Special thanks go to the Malaria Consortium and the Department for International Development for providing technical assistance right from the initial stages of drafting the strategic plan.

The Ministry of Health would like also to thank UNICEF and WHO for their support in ensuring that all the input from the various stakeholders in malaria control were included and reflected in the final strategic Plan document.

## ACRONYMS

ANC	Antenatal Care
CBO	Community Based Organisation
CDR.	Crude Death Rate
CQ	Chloroquine
CRPs	Community Resource Persons
DFID	Department for International Development.
DHT	District Health Team
EAC	East African Community
EANMAT	East African Network for Monitoring Antimalarial Treatment
EPI	Extended Programme of Immunisation
EPR	Epidemic Prevention and Response
GIS	Geographical Information System
GOU	Government of Uganda
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HRD	Human Resource Development
HSSP	Health Sector Strategic Plan
HWK	Health Worker(s)
ICCM	Inter Agency Coordination Committee on Malaria
IDS	Integrated Disease Surveillance
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
IMR	Infant Mortality Rate
IPT	Intermittent Presumptive Treatment
ITM	Insecticide Treated Material
ITN	Insecticide Treated Net
KAP	Knowledge Attitude Practice
MCP	Malaria Control Programme
MCU	Malaria Control Unit
MOH	Ministry of Health
MTEF	Medium Term Expenditure Framework
NDA	National Drug Authority
NGOs	Non Governmental Organizations
NMS	National Medical Stores
PDC	Parish Development Committee
RBM	Roll Back Malaria
R&D	Research & Development
SP	Sulphadoxine-Pyrimethamine
SWAp	Sector Wide Approach
UDHS	Uganda Demographic and Health Survey
UNICEF	United Nations Children's Fund
Ushs	Uganda Shillings
WHO	World Health Organization

## EXECUTIVE SUMMARY

This document presents a four-year strategy for scaling up malaria control in Uganda. It is intended to provide a framework for all partners in the public and private sectors and in civil society at all levels.

It is written in the broad context of Government of Uganda policies and strategies for development and poverty reduction and of the global “Roll Back Malaria” movement, to which the Government of Uganda is committed.

The Government of Uganda has set itself ambitious targets for substantially reducing the burden of malaria by 2005. This document maps out the interventions, approaches and partnerships needed to meet those targets. It draws on the work of several working groups and consensus building meetings that have developed individual components of the strategy.

Malaria causes more illness and death in Uganda than any other single disease. It is responsible for more than 15% of life years lost due to premature death. It accounts for about 15 - 40% of outpatient attendances at health care facilities and about 9 - 14% of deaths of inpatients.

There is stable transmission of malaria in 95% of the country. In the rest of the country particularly in the highlands of the southwest and east, the transmission of malaria is not stable and epidemics of malaria are common. Epidemics of varying severity and extent occurred in these areas in 1992, 1994, 1997/1998 and 2000/2001.

All people living in Uganda are at risk of being infected with malaria parasites and suffering attacks of malaria; but those who have little or no immunity to malaria are more vulnerable than other people. They suffer more attacks of malaria and are at greater risk of having the severe and complicated form of the disease and, unless they receive appropriate health care, they are more likely to die. These vulnerable groups include children below 5 years of age and pregnant women in areas of high malaria transmission, and people of all ages in areas of low transmission.

The malaria problem is made difficult by many factors. These include the increasing resistance of malaria parasites to chloroquine and sulphadoxine-pyrimethamine which leads to treatment failures; climatic changes which lead to epidemics, weak health systems with poor access to health care facilities, and poor access to knowledge about appropriate health behaviour in the population, which leads to delay in treatment or wrong treatment.

The Government of Uganda recognizes poor health as a major cause of poverty, and malaria as one of the principal contributors to poor health and, therefore,

poverty. Malaria treatment in poor families consumes a large proportion of limited household resources. A malaria stricken family may spend up to 25% of its income on the direct or indirect costs of the disease.

Malaria control is a component of the 'Minimum Health Care Package for Uganda'. The Health Sector Strategic Plan sets specific targets set to be attained by June 2005. These targets reflect the targets set by the African heads of state in April 2000 in the 'Abuja Declaration' and the objectives of Roll Back Malaria set out in 1998. The targets are:

- To increase from 30% to 60% the proportion of the population that receive effective treatment for malaria within 24 hours of the onset of symptoms
- 60% of pregnant women to receive protection against malaria through intermittent presumptive treatment with SP
- To increase from 5% to 50% the proportion of children under 5 protected by ITMs
- To reduce malaria case fatality at hospital level from 5% to 3%

Implementation of malaria control in Uganda will be guided by the principles of equity of access, country ownership, partnerships, health sector reform, integration into primary health care and use of cost-effective evidence based interventions.

The principal intervention strategies are case management, intermittent presumptive treatment during pregnancy, vector control, and epidemic prevention preparedness and response. These intervention strategies will be supported by enabling strategies including advocacy, information, education and communication (IEC) and social mobilization; human resource development; systems strengthening; technical support; surveillance and operational research; and management and supervision.

Successful implementation of these strategies and achievement of these targets will require a strong partnership between all stakeholders at all levels. This includes families, communities, public and private sector service providers, and policy makers throughout the government, development partners, NGOs and the private sector.

It is estimated that implementation of this four year strategic plan will cost a total of approximately Ushs. 37 billion for the national malaria control programme alone. Increased funds will also be needed to scale up activities at District level. Increased resource mobilisation from traditional and non-traditional sources at all levels will be vital to achieving the 2005 targets.

## CONTENTS

FOREWORD .....	i
ACKNOWLEDGEMENT .....	ii
ACRONYMS .....	iii
EXECUTIVE SUMMARY .....	iv
CONTENTS .....	vi
1 INTRODUCTION .....	1
1.1 Malaria Situation in Uganda .....	1
1.2 Roll Back Malaria .....	3
1.3 Malaria and Poverty Reduction .....	3
1.4 Government Policies and the Health Sector Strategic Plan .....	4
1.5 Non line Health Ministries and malaria control .....	5
1.6 Achievements of malaria control .....	5
1.7 SWOT Analysis of MCP .....	5
2 ORGANISATION .....	8
2.1 Malaria within health sector reform .....	8
2.2 National Malaria Control Programme .....	8
2.3 District and Sub district services .....	8
2.4 Primary Health Care .....	9
2.5 Partnerships .....	9
2.6 Overall coordination .....	11
2.7 Guiding Principles .....	11
3 PROBLEM STATEMENT AND STRATEGY INTENTIONS .....	12
3.1 Problem Statement .....	12
3.2 Goal and objectives of malaria control .....	12
3.3 Strategies and interventions .....	12
3.4 Main intervention Strategies .....	13
3.5 Enabling/Support strategies .....	15
4 IMPLEMENTATION ARRANGEMENTS .....	18
4.1 Implementation Overview .....	18
4.2 Partner roles and responsibilities .....	18
4.3 Annual targets and Milestones .....	18
4.4 Funding mechanism .....	19
4.5 Budget Summary .....	21
5. BUDGET JUSTIFICATION .....	22
5.1 Case management .....	22
5.2 Intermittent presumptive treatment .....	22
5.3 Vector control .....	22
5.4 Epidemic preparedness and response .....	23
5.5 Advocacy, IEC and social mobilisation .....	23
5.6 Human resource development .....	23
5.7 Systems strengthening .....	23
5.8 Technical support .....	23
5.9 Monitoring and evaluation including operational research .....	23
5.10 Management and supervision .....	24
6. REFERENCES .....	25
Annex 1: Summary RBM baseline indicators .....	26
Annex 2: Terms of reference for malaria control unit, zonal teams and district malaria focal persons .....	31
Annex 3: Framework for Overall Coordination .....	33
Annex 4: Terms of reference and membership of Inter Agency Coordination Committee on Malaria .....	34
Annex 5: Terms of reference for the ICCM working groups .....	35
Annex 6: Logical Framework .....	37
Annex 7: Annual targets and objectives .....	39
Annex 8: Partner roles and responsibilities .....	42
Annex 9: Budget estimates for the plan .....	45

# 1 INTRODUCTION

The Ministry of Health established a malaria control programme (MCP) in 1995. The program developed its first three-year strategic plan in 1997, which ended in 2000. A lot of achievements were made in the period just as many new challenges emerged.

This document describes the situation of malaria in the year 2000 and re-articulates the goal, objectives and intervention strategies for the MCP for the period 2001-2005. In addition, it spells out the annual targets (annual milestones) and interventions, in broad terms, which will lead to the timely realization of the Health Sector Strategic Plan (HSSP) targets. It is the second strategic plan for the programme.

It (this document) is intended to provide a framework for all partners in the public and private sectors and the civil society working on malaria control at all levels from the individual household to central organizations. It is written in the broad context of Government of Uganda policies and strategies for development and poverty reduction and of the global "Roll Back Malaria" movement, to which the Government of Uganda is committed.

It draws on several existing documents that describe in more detail individual components of the strategy and were developed through consultation with partners.

## 1.1 Malaria Situation in Uganda

Malaria is endemic in 95% of Uganda. The remaining 5% are epidemic-prone areas in the highlands of the South West and East. A 1995 Burden of Disease study<sup>1</sup> indicated that 15.4% of life years lost to premature death were due to malaria. A recent MOH information update on malaria in Uganda (2000)<sup>2</sup> reported that malaria accounted for 25-40% of outpatient visits in 1992/3, 27-51% in 1998 and 29-50% in 1999. A household survey conducted by the Uganda Bureau of Statistics in 1999/2000<sup>3</sup> showed that Ugandans were reporting more illness than they were in 1992 and particularly more malaria. 28% of those interviewed, reported illness in the 30 days preceding the survey and 56% of them stated malaria/fever as the cause of that illness.

According to a study in the four districts of Jinja, Mukono, Arua and Mbarara by Commercial Market Strategies (CMS) 2000, awareness about malaria in general is high (99%) with 70.6% of the people getting the malaria messages from the radios. However, knowledge on recognition of disease, which is critical in case management, was still very low. Only 34% linked fever to malaria, 18% associated malaria with cold, 14.5% associated malaria with headaches, 11.7% mentioned joint pains, and 10.6% body weakness. Malaria was mainly considered a problem of children (75%). These findings are in agreement with the KAP study of 1999 in seven districts by the Centre for Basic Research (CBR) sponsored by MOH.

In 2001, baseline surveys<sup>4</sup> were undertaken in the districts of Apac, Tororo, Mubende and Kabale representing the four epidemiological strata of malaria in Uganda, with the aim of getting baseline indicators for monitoring and evaluating RBM impact<sup>5</sup> in Uganda. The study found that malaria continues to be the most serious public health problem in Uganda. Children under five and pregnant women bear the greatest burden of the disease and within these groups the poorest are most vulnerable (see 1.3 below).

According to the baseline survey, morbidity attributed to malaria in children aged less than 5 years presenting to outpatients was 44.4%, while for those above 5 years it was 41.6% and



for all ages 38.8%. This is in agreement with the health unit OPD findings, stated above. Mortality attributed to malaria in inpatients was 42.9% in the under 5-year-old and 25.1% in those 5 years and above. The case fatality rate in children under 5 was 4.05% and 2.18% for those above 5 years. The proportion of fever/uncomplicated malaria correctly managed at health facilities in all age groups was 27.6%. Among those admitted with severe malaria aged less than 5 years, 38.9% were correctly managed. Insecticide treated nets were available in 17.6% of the households surveyed but only 9.8% were appropriately treated with insecticide. The percentage of children under 5 years whose caretaker sought treatment within 24 hours is low at 7.3%, and when they did so the first action in 47.6% was self-medication, while 24.6% went to a health facility. The Crude Death Rate in the under 5 years was 78.04 per 1000 live births. This is comparable to the preliminary findings of the Uganda Demographic and Health Survey (UDHS) in 2001<sup>6</sup>. In the one epidemic-prone district included in the baseline survey, epidemics were detected more than 2 weeks after onset but were appropriately managed.

One study in Hoima in the late 1990s<sup>7</sup> showed that 62.1% of pregnant women had *Plasmodium falciparum* parasitaemia. Pregnant women in Uganda are at high risk of contracting malaria with complications that include maternal anaemia and, in severe cases, maternal death, abortion, stillbirths, premature delivery, perinatal anaemia and low birth weight children. In another KAP study, by Commercial Market Strategies 2000, only 10% of the respondents perceived malaria as a problem during pregnancy. Further still health facility records don't provide for malaria cases during pregnancy as a separate category. As a result the consequences of malaria in pregnancy remain masked. There is urgent need to protect women and the unborn children from the effects of malaria during pregnancy. Efforts to promote Intermittent Presumptive Treatment (IPT) of pregnant mothers have just started.

The incidence of epidemics has increased in the highland regions in recent years. Uganda experienced malaria epidemics in 1992, 1994, 1997/8 and in 2000/1. The most affected districts were Kabale, Rukungiri and Kisoro. A total of fourteen districts do experience epidemics, which occur almost every two years, with a wave starting at the southern end and moving northwards. In these districts all age groups are at equal risk of catching and dying of malaria. This cycle of epidemics seems to suggest an epidemiological transition from lower to higher malaria endemicity that may be associated with recent climatic changes. Until a new state of equilibrium is established, these areas are likely to experience repeated epidemics and therefore there is need to prepare for them adequately. District capacity for implementing an integrated epidemic preparedness and response plan has been built. It will need maintenance, support and upgrading over time.

In Uganda, all the four malaria parasites exist. Unfortunately, over 95% of the cases are due to *Plasmodium falciparum*, which is responsible for severe malaria. Furthermore, *P. falciparum* strains have developed resistance to chloroquine and sulphadoxine-pyrimethamine (SP) the commonest antimalarial drugs; and resistance to chloroquine and (SP) continues to rise. Currently, the national average resistance to chloroquine is estimated at 30% while that to SP is 10%. Consequently, the Ministry of Health and its partners have initiated the process to change first line antimalarial drugs and a national consensus has been reached. Formerly the treatment for uncomplicated malaria was chloroquine alone as first line drug, with either sulphadoxine-pyrimethamine (SP) or amodiaquine as second line drug. This has been changed to chloroquine plus SP combination therapy as first line drugs, and quinine as second line. Quinine remains the recommended drug for severe malaria.

The burden of malaria in Uganda is further aggravated by the presence of very efficient malaria vectors. The *Anopheles gambiae* complex breeds in simple, temporally, small water bodies that can be found anywhere in the country; more so during the rainy season. The *An.*

*funestus* mosquito, also a common vector breeds in stable, large water bodies, which are also widely spread over the country. These two vectors also have differences in some of their behaviours, which may complicate preventive approaches and aggravate the diseases burden.

## **1.2 Roll Back Malaria**

Roll Back Malaria (RBM) was launched in 1998 as a global movement for enlisting everybody's participation in malaria control. It is a social movement aimed at minimizing suffering from malaria and it approaches malaria from a partnership viewpoint. Partners contribute according to their comparative advantages. RBM emphasizes strengthening health services and making effective prevention and treatment strategies more widely available.

The goal of RBM in the WHO African Region is to control malaria to the level where it is no longer one of the major contributors to mortality and morbidity in the region by the year 2030. The RBM objectives in the African Region are to reduce mortality and morbidity. The targets set are to halve malaria mortality and morbidity by the year 2010 with further reduction of the 2010 morbidity and mortality figures by 50 percent and 75 percent respectively by 2015. These levels will be further reduced by 50 percent and 80 percent respectively by the year 2025, and by the year 2030, malaria will no more be a major public health problem in the region.

In April 2000, African Heads of State held a summit on Roll Back Malaria in Africa in Abuja Nigeria in which they re-stated their commitments to controlling malaria and reviewed targets for tracking progress. Uganda was signatory to the Abuja declaration and the set targets are already incorporated in the national Health Sector Strategic Plan (HSSP). The RBM movement has already attained the highest political commitment and support in the country and the Head of State monitors RBM activities and participates in the promotion of technologies for malaria control.

In order for RBM objectives to be achieved as scheduled, and in realization of the common interests (RBM/IMCI), a collaborative mechanism has been established at country level to quickly minimize childhood deaths attributable to malaria.

## **1.3 Malaria and Poverty Reduction**

The two-way relationship between malaria and poverty has been highlighted in several studies. The most recent household survey<sup>3</sup> for the Poverty Monitoring Unit in the Ministry of Finance shows that the population living in absolute poverty has reduced from 56% in 1992 to 35% in the year 2000. Although, the figure has fallen, for a large proportion of the population, access to health care and health status remain unsatisfactory.

The nineties have seen rapid economic developments both at national and community levels. These are evidenced by the many road networks that have been developed and the number of high quality houses that have been constructed in the various communities countrywide. These developments however, have facilitated increased transmission of malaria nation wide.

Malaria treatment in poor families consumes a large proportion of limited household budgets. Malaria stricken families were noted to spend 25% of their income on direct or indirect costs in Africa<sup>8</sup>. Household surveys<sup>9</sup> in Kabarole and Bundibugyo districts showed that the direct costs of treatment for a suspected malaria episode averaged US\$ 4.10 in urban settings and about US\$ 1.80 in rural settings. Time off work and transport to seek treatment further

reduces household income. Poor school performance due to malaria illness and absenteeism reduces children's chances of escaping from poverty. Poor people tend to live in environments conducive to mosquito breeding and malaria transmission. Thus malaria enhances poverty, which in turn causes poor disease management, locking people in malaria - poverty trap.

Uganda is generally an agricultural country. The kind of farming is dependent on the rainy season that unfortunately is associated with the peak of malaria transmission. This concurrency adversely affects agricultural production, which is the source of livelihood for the majority of Ugandans. Subsequently, the lack of cash means the people are unable to afford preventive measures such as insecticide-treated materials(ITMs); they get inadequate treatment or seek appropriate treatment late. This raises the likelihood of transmission to others, severe malaria and death.

#### **1.4 Government Policies and the Health Sector Strategic Plan (HSSP)**

The Government of Uganda recognizes the effect of poor health to economic development and has taken steps to address it through the 'Poverty Eradication Action Plan' (PEAP)<sup>10</sup>, Poverty Action Fund (PAF) and a consumer-focused health policy. The Health policy, which is operationalised in the HSSP, is primary health care-oriented and thus consumer focused.

Through the PEAP, Government seeks to address poor health in the following ways:

- Health care subsidies in the rural communities
- Using the conditional equalisation grants in favour of poor districts
- Providing greater subsidies to costs of treating highly communicable diseases
- Subsidising health units that are more frequently visited by the poor

This Malaria Strategic Plan reflects the National Health Policy<sup>11</sup> and the 'Health Sector Strategic Plan' (HSSP) for 2000-2005<sup>12</sup>. The overall objective for the HSSP is reduction in morbidity and mortality from major causes of ill health and reduction of disparity therein, as a contribution to poverty eradication and economic and social development of the people. The plan has five main outputs namely:

- Output 1: Implementation of the minimum health care package
- Output 2: Strengthening of the health care delivery system
- Output 3: Strengthening and operationalising the legal and regulatory framework
- Output 4: Strengthened and operationalising integrated support systems
- Output 5: Operationalising policy, planning and information management system and implementation of research and development

Malaria is the first element of the minimum health care package and the success of this malaria control strategic plan is heavily dependent on the attainment of the above HSSP outputs. For example the HSSP targets improving access to health facilities (i.e. proportion of the population living within 5km of a health facility) from 49% to 80%, ensuring the availability of essential drugs and other medical supplies, and logistics at all levels. These are critical in malaria prevention and control service delivery.

#### **1.5 Non-health line Ministries and malaria control**

As already indicated in the section on malaria and poverty, malaria affects many other sectors. Some of these sectors have good networks for their operations down to community level, which can be of use to malaria control efforts. For example, the Ministry of agriculture

has got extension workers assigned to sub-counties and parishes where they advise on farming practices. Ministry of education has got an establishment essentially on every village where teachers and pupils mix with the community on daily basis. The department of meteorology has a network of weather stations over the country, which could be used to forecast malaria transmission etc. Other ministries and departments are equally endowed with potentially useful capacities for malaria control. Unfortunately, these are yet to be substantially exploited, to the benefit of malaria control.

On the other hand, some sectors are involved in activities that enhance malaria transmission and are therefore potentially harmful to the communities where they operate. Such undertakings ought to consider malaria risk assessment and put appropriate control measures in place. This approach to project design has not been adopted.

## **1.6 Achievements of malaria Control**

During the course of implementation of the first strategic plan, many achievements have been registered. Notable among the achievements are, elevation of the MCP status within the ministry to a programme, capacity building at national level, establishment of a nation wide malaria control network, operationalising programme strategies, containing epidemics etc. To date more than 30 health workers engaged in clinical work have been trained in malaria case management in each district; each of the epidemic prone districts has been supplied with 12 specialised pumps for IRS; all districts have been introduced to IPT; they have health plans that incorporate malaria control activities; and, they have been supplied with guidelines on vector control, malaria case management, and IPT among others. A strategy for improving home based care of malaria has been designed and approved and a baseline survey for monitoring RBM has been accomplished.

## **1.7 SWOT Analysis of the MCP**

### **1.7.1 Strengths and Opportunities for the MCP**

- ◆ An institutional framework to guide and supervise implementation of the malaria plan of action exists throughout the country.
- ◆ There is good collaboration among MOH key programs e.g. IMCI, RH, Vector control, Health Promotion.
- ◆ There is good collaboration between MCP and other stakeholders e.g. commercial market strategies (CMS), GTZ and Vestaguard, UN agencies, multi-lateral and bilateral agencies and diplomatic missions.
- ◆ The private sector in Uganda is eager to import, promote and sell malaria control technologies, e.g. ITMs, insecticides, anti-malaria drugs.
- ◆ A widespread network of NGOs and CBOs with enormous experience in community based malaria control initiatives exists throughout the country.
- ◆ The country now is well covered with FM radio stations, and cellular phones, which enhance communication in local languages and encourage interactive radio programmes.
- ◆ The use of pre-packed drugs in three districts successfully demonstrated increased access to anti-malaria drugs and enhanced home-based management of fevers.

- ◆ The use of “community agents” to distribute anti-malaria drugs in Rukungiri in 1998 proved essential in controlling an upsurge of malaria. This has been adopted in other epidemic prone districts.

### **1.7.2 Weakness and threats to MCP**

- ◆ In the past, activities have not been implemented in a synergistic manner. Sub-sections were implemented vertically, in no explicit sequence and with little focus on the annual unit output. There was poor coordination at the recipient end and no visible results at the end of a given period
- ◆ Low budget for malaria activities at district and lower administrative levels, arising from the misconceptions about malaria. While malaria is recognized as a common health problem, its implications are grossly underrated. This is further enhanced by the absence of new data on the disease in terms of distribution and vector bionomics and sentiments related to the long-term relationship of man and malaria.
- ◆ The fast spreading malaria parasite resistance to common, cheap and easy to administer drugs, frequent epidemics in areas that used not to have malaria and relatively low concentration of quality service outlets in the country. For instance, of the 3624 Health Center II planned in the HSSP 2000/1 – 2004/5, only 746 are in place at a time when the average chloroquine treatment failure is 30%.
- ◆ There is also low participation of non-health sectors in malaria control despite the far-reaching malaria consequences, which compromise other sector outputs.
- ◆ As many social-economic developments emerge, they create many areas that are conducive to malaria transmission and propagation. This masks the achievements in terms of malaria indices reductions that are already attained.

### **1.7.3 Strategy-specific weaknesses**

#### **1.7.3.1 Case Management**

- Inadequate manpower (numbers and quality) at district, health facility and community levels to handle the case load especially in epidemic situations.
- Inadequate drug supplies. Many front-line health units lack second line and pre-referral drugs leading to delays in starting of appropriate treatment nation-wide.
- Inadequate supply of support materials e.g. IV fluids, blood and diagnostic aides.
- Insufficient information on the new anti-malarial drug policy leading to prolonged use of mono-therapy.
- Inadequate malaria knowledge at community and household level
- Weak referral system

#### **1.7.3.2 Preventive measures**

- Shortage of insecticides and accessories (spray pumps, spares, etc) and trained technicians
- Shortage of affordable mosquito nets in communities.
- High level of misconceptions about insecticide treated bed nets.
- Inadequate and inequitable distribution of ITN outlets in the country.

#### **1.7.3.3 Community based activities**

- Lack of educational materials especially in local languages.

- Inadequate community mobilization.
- Inadequate appreciation of malaria as a serious disease with related consequences e.g. poverty.

#### **1.7.3.4 Surveillance capacity**

- Inadequate or inappropriate data collection, analysis and utilization at district and lower levels.
- Epidemic preparedness in the epidemic prone districts is inadequate leading to late response.

## **2 ORGANISATION**

Control of malaria is a primary responsibility of the Ministry of Health and is implemented under the established framework for the ministry. The Malaria Control Programme handles the day-to-day activities. It reaches the communities through the district, health sub-district, sub-county and parish levels.

### **2.1 Malaria within health sector reform**

The Malaria Control Programme is adopting an increasingly horizontal approach funded primarily from the Ministry of Finance, though there is still some direct funding from development partners. Partner roles and responsibilities at different levels of the health system and among different actors are described in 2.5 below. Funding sources and mechanisms are described in section 4.4.

It should be noted that Programme activities are undergoing considerable change as a result of key developments within the public sector generally and the health sector specifically such as;

- Decentralization of planning and services delivery obligations,
- Creation of Health Sub-districts,
- Adoption of the Sector-wide Approach (SWAp) to health
- A focus on primary health care and an integrated package of health services, including malaria
- Adoption of Integrated Management of Childhood Illness (IMCI) as an approach to tackle common illnesses of childhood.

### **2.2 National Malaria Control Programme**

The role of the National Malaria Control Programme (MCP) at central level is to support implementation through policy formulation; setting standards and quality assurance; resource mobilisation; capacity development and technical support; malaria epidemic control, co-ordination of malaria research; and monitoring and evaluation. The MCP improves its outreach to Districts through zonal RBM and IMCI teams which work closely with the District Malaria Focal Persons. Terms of reference for the MCP, the Zonal Teams and the District Malaria Focal Persons are shown in Annex 2.

### **2.3 District and Sub-district Services**

Responsibility for planning, resource allocation and management of implementation rests primarily at district level. A malaria focal person within the District Health Team is the main point of contact for partners. The health sub-districts are intended to be the operational component of the district health offices and are a further decentralisation, an extension of the health services. They manage the health facilities in their area, including referral services and ensure equity, balance and community involvement. MOH and its RBM partners will contribute to strengthening existing referral structure in order to improve access to treatment for severe malaria at higher-level facilities.

## **2.4 Primary Health Care**

Within the formal health sector, malaria preventive and curative interventions will be integrated in delivery of the Minimum Health Care Package at primary health care level. Primary health care facilities will have a central role in delivering services, through IMCI and through care of people over 5 years with malaria, and in working with communities and other partners to deal with malaria locally.

## **2.5 Partnerships**

As stated above, partnerships are vital to achieving the set targets. The Ministry of Health will build on partnerships with all the major stakeholders to enhance a sustainable malaria control programme in Uganda. The partnerships will be co-coordinated through the Interagency Co-coordinating Committee for Malaria (ICCM), and by task forces on specific topics as the need arises (see section 2.6).

### **2.5.1 Linkages Within the Ministry of Health**

At national level, while the main responsibility lies with the Malaria Control Programme within the Department of Disease Control, other teams have important roles and responsibilities and the malaria control strategy will be managed as collaboration between them. Key departments and teams include: IMCI, Vector Control, Reproductive Health, School Health, Planning, Quality Assurance, HMIS, Integrated Disease Surveillance and the Chief Pharmacist. The MCP will also work closely with other Disease Control Teams such as TB to share experience with different approaches and where appropriate co-ordinate activities.

The MCP will collaborate and work with IMCI at all levels of health care delivery. The prevention and control of malaria in under-fives will be implemented with IMCI through integrated training, supervision, monitoring and treatment guidelines.

The MCP will work closely with Vector Control Division particularly on studying and mapping malaria-entomological parameters.

The Malaria Control Programme will also work with the Reproductive Health Division on the implementation of strategies for controlling malaria in pregnancy.

The Programme will also collaborate with the School Health Unit to introduce and institutionalize malaria control interventions in school settings.

The Programme, working with the Planning Department, will support Districts and Health Sub-districts to ensure adequate integration of malaria control activities into operational plans.

The National Drug Authority, primarily a regulatory authority, will ensure and assist in quantification of drugs for various levels of care, ensure that quality drugs and insecticides are imported and locally produced, and ensure proper storage, proper distribution and rational use of antimalarial drugs and insecticides in the country.



The National Medical Stores and the Joint Medical Stores will ensure procurement of quality drugs and reagents and their subsequent distribution. Other areas of collaboration within the Ministry of Health are outlined in other sections.

### **2.5.2 Partnerships with Other Ministries and Government Authorities**

Tackling malaria is not solely a Ministry of Health responsibility. The MOH will work with other relevant ministries: Agriculture, Education, Gender, Works, Environment, Defense, Internal Affairs and Local Government to implement malaria control interventions where they have comparative advantages.

The Ministry of Health will work with the Ministry of Finance on mobilising adequate resources within the public sector to implement the strategy, and on monitoring the relationship between malaria interventions and poverty and ensuring that malaria strategies reach the poorest.

### **2.5.3 Partnerships with Non-Governmental Organisations (NGOs)**

NGOs, whether contracted directly by MOH or other line ministries, or funded by Development Partners or other sources, will be important partners as both advocates for the strategy and as implementing partners for service provision, capacity building, and monitoring and evaluation.

### **2.5.4 Partnerships with Civil Society**

Civil Society Organisations at all levels will be vital partners in advocacy and implementation, and an important voice for service users (especially at community level).

### **2.5.5 Partnerships with the Private Sector**

The private sector includes many different types of organisation: manufacturers and distributors of equipment and supplies, service providers, the media (radio, television, press) etc. The MOH will promote formal and informal public-private partnerships with all these to maximise the impact of the strategy. This process has already started under the new health policy.

### **2.5.6 Partnerships with Research and Teaching Institutions**

The MOH will work with research and teaching institutions in pre- and in-service training for personnel involved in malaria control in all sectors, and on promoting evidence-based practice through collaboration on focused research and its translation into practice.

### **2.5.7 Partnerships with Development Partners**

The multilateral and bilateral development agencies will be important partners in advocacy, resource mobilisation and provision of strategic and technical advice and support.

### **2.5.8 Partnerships with other country governments**

Neighbouring governments will be important partners on cross border issues, and in sharing experiences and expertise. The East African Community (EAC) will provide an important forum for discussion of inter-country malaria issues. The Uganda Ministry of Health will

continue to be a member of the East African Network for Monitoring Antimalarial Treatment (EANMAT)<sup>13</sup> in collaboration with Ministries of Health in Burundi, Kenya, Rwanda, and Tanzania (and possibly other countries in future) and research institutions in all member countries.

### **2.5.9 Partnerships with the community**

Recent studies have shown that over 80% of people first seek treatment for fever within the community or at home. Given this fact, it is essential that partnership is established/nurtured between MCP and community structures. The following structures will be targeted for this purpose: civil societies, community leaders, community based providers, mothers' unions and shop attendants.

### **2.6 Overall co-ordination**

A framework for the coordination of malaria control activities has been established as shown in Annex 3. This framework consists of the Interagency Coordination Committee on Malaria (ICCM), and working groups covering case management and drug policy, Vector control and insecticides treated materials, IEC, advocacy and social mobilization and Research. The ICCM provides the forum at the national level for all the major stakeholders to exchange information, coordinate malaria control plans and activities countrywide; monitor progress against objectives and set targets as stated in the HSSP. The Working Groups provide fora for bringing together partners with expertise on particular aspects of the strategy. Terms of references have been developed for ICCM and the working groups and are shown in Annexes 4 and 5 respectively. The MCP will advocate for comparable partnership mechanism at District level and below. However, this document does not define specific co-ordination mechanisms at District level and below; it will be for those levels to decide the most appropriate arrangements, taking local circumstances into account.

### **2.7 Guiding Principles**

The malaria control strategy in Uganda will be governed by the guiding principles shown in Box 1. These draw on the principles of the Poverty Eradication Action Plan, the HSSP and RBM in Africa.

#### **Box 1: Guiding Principles for Roll Back Malaria in Uganda**

- i) Equity of access, a poverty focus and gender awareness
- ii) Emphasis on country ownership of the entire process
- iii) Building and strengthening partnerships;
- iv) Contribution to Health Sector Reform,
- v) Integration of the malaria control activities into primary health care, and other socio-economic development activities,
- vi) Increasing the coverage of cost-effective, evidence-based technical interventions,
- vii) Strengthening community participation
- viii) Strengthening the Health Management Information System and Research
- ix) Strengthening inter-country partnerships for cross-border issues.

### **3. PROBLEM STATEMENT AND STRATEGY INTENTIONS**

#### **3.1 Problem statement**

Malaria is on the increase in the country both in terms of spatial distribution and intensity. Despite the many achievements in the past three years, morbidity and mortality indices remain unacceptably high. The apparently worsening situation is attributed to a number of factors: epidemiological shifts due to climate change, environmental factors increasing breeding sites for mosquitoes, increasing resistance to antimalarial drugs, weak health systems, late treatment seeking behavior, inadequate knowledge on the disease, costly preventive interventions and the high prevalence of low quality treatment outlets (formal and informal). These issues have to be addressed in order to control malaria and attain the articulated targets on schedule.

#### **3.2 Goal for Malaria Control**

The goal of the MCP is to prevent and control morbidity and mortality and to minimize social effects and economic losses attributable to malaria in the country

##### **3.2.1 Objectives for the period 2001 – 2005**

- (1) To increase the proportion of the population at risk of malaria, who receive appropriate treatment for malaria within 24 hrs of recognition of symptoms, to 60% by end of 2005
- (2) To increase the proportion of pregnant women receiving IPT to 60% by end of 2005.
- (3) To increase the proportion of children aged less than 5 years, regularly sleeping under Insecticide Treated Nets (ITNs) to 50% by end of 2005.
- (4) To reduce malaria case fatality rate, at hospital level, to 3% by end of 2005.

#### **3.3 Strategies and interventions**

The malaria control programme has four main intervention strategies and a number of enabling strategies designed to ensure that these interventions are delivered effectively. The strategies to be employed are: Case Management, Vector Control, Intermittent Presumptive Treatment of pregnant women and Epidemic Preparedness and Response.

In broad terms the Malaria Control Programme in the period 2001 - 2005, will implement interventions aimed at quick attainment of HSSP targets. Specific annual targets to ensure close monitoring of progress are set and will be evaluated periodically.

Generally, the program will strengthen preventive and management capacity for malaria at all levels, institutionalize case management at household level, and continue to monitor anti-malaria drug efficacy. It will also, institute measures to detect and control malaria in emergency situations, implement selective vector control measures and intensify community mobilization for malaria control.

As part of the process, the programme will develop a new malaria endemicity map, malaria control packages for areas with similar epidemiological characteristics, conduct

maliometric and entomological studies, up-date the stratification of the country to ease targeted interventions and establish a center for training field officers in basic malariology.

In order to ensure timely and result oriented interventions, the programme will undertake systematic advocacy for RBM and strengthen partnerships at all levels with all stakeholders. The programme will stimulate participation of other Government sectors, Universities, private sector, NGOs, CBOs, lower level administrative units, etc. It will ensure involvement of all Ministry of Health departments in malaria control and generally undertake a proactive approach rather than a reactive one as in the past.

### **3.4 Main Intervention Strategies**

The strategies set out below are based on an assessment of the current situation and the currently available evidence on the effectiveness and cost-effectiveness of different intervention options.

#### **3.4.1 Case Management**

This strategy aims at:

- Improving treatment-seeking behaviour so that patients or caretakers recognise the signs and symptoms, know what action to take and where treatment is available.
- Improving access to effective diagnosis and treatment; in terms of access to physical facilities, drugs and trained providers
- Ensuring an adequate supply of effective drugs and ancillary supplies.
- Strengthening the referral system

Efforts will be made to translate the existing awareness into knowledge and appropriate actions especially among mothers, child-caretakers and community leaders. First line drugs will be made available in the community through trained providers – community resource persons - supplied and supervised from nearby health unit facilities. Drug shop owners will also be trained on first line treatment and how to give appropriate advice on supportive treatment and referral.

Facility based services and referral systems between different levels of the health system will also be strengthened as part of wider health system development. The Malaria Control Programme will contribute to this process to ensure that malaria issues are addressed.

An effective system for delivery of drugs and other supplies is essential to this strategy and the Malaria Control Programme and other malaria partners within the MOH will advocate for and contribute to the design and implementation of the system in collaboration with the National Medical Stores and private suppliers. Potent first-line anti-malaria drugs will be packed in unit courses to ensure dose compliance and distributed through front-line health outlets (public and private) to ensure early treatment of malaria patients.

The strategy will follow the national antimalarial drug policy<sup>14</sup>. The programme will continue to actively monitor drug efficacy, through the East African Network for Monitoring Antimalarial Treatment, and update the antimalarial drug policy as need arises.

### **3.4.2 Intermittent Preventive Treatment of malaria in pregnancy**

All pregnant women will receive 2 doses of SP as intermittent presumptive treatment of malaria; one in the second trimester and one in the third trimester as part of the antenatal care package. The strategy will be scaled up by integrating it into maternal services at both health facility and community levels and creating demand for the services. This will include training of health workers, provision of implementation guidelines, drugs, supplies and inclusion of IPT in the HMIS. The implementation of this strategy will be steered by MCP but coordinated by the Division of Reproductive Health.

The appropriateness of SP for IPT will be closely monitored and modified as need may arise. The programme and its partners will continue to explore the most appropriate approaches of delivering IPT.

### **3.4.3 Vector Control**

Control of malaria vectors remains one of the main strategies against malaria. The key interventions under this strategy will be promotion of insecticide treated nets (ITNs) and indoors residual spraying (IRS).

Insecticide treated nets are currently considered the most cost-effective method of malaria prevention in highly endemic areas. While children under five are the primary target, other vulnerable groups (e.g. pregnant women, internally displaced persons, etc), will be encouraged to acquire and use ITNs.

The promotion of ITN use will be implemented through a public-private approach. Major implementers shall include NGOs, the commercial and public sectors.

The main focus of this strategy will be

- Creation of demand for nets and insecticides
- Ensuring availability of affordable quality nets and insecticides in urban and rural retail outlets
- Provision of subsidised ITNs to vulnerable groups
- Promoting correct use of ITNs and maintenance of their effectiveness

The public sector through the MCP will coordinate, set standards and develop and distribute guidelines for ITN promotion. It will also develop a system of targeted subsidies and net re-treatment centers at community level. In line with the decentralisation policy, the districts will manage net re-treatment centres and the targeted subsidy system.

The private sector will be the main source of ITNs and insecticides. They will use both commercial and social marketing approaches to create demand in both rural and urban areas. NGOs, CBOs and other civic organisations will be the main outlets of ITNs and insecticides in the under-served areas.

In order to reach the poor and vulnerable, a voucher system will be adopted. Vouchers will be accessed through the public system (e.g. at the antenatal and under five clinics) and will enable beneficiaries to purchase nets and insecticides at a subsidised price from any outlet. The supplier will be reimbursed the equivalent of the subsidy. Other means of reaching the vulnerable poor with ITNs such as revolving funds will be explored.

Indoor Residual Spraying (IRS) using acceptable insecticides will be instituted at a recommended frequency to halt transmission in epidemic prone areas. IRS will also be

encouraged where use of ITNs is difficult (e. g. boarding schools, barracks, prison cells, and in-patients health facilities) regardless of level of endemicity. Other vector control approaches will be encouraged where appropriate.

MCP will be responsible for overall coordination, supervision and monitoring of all the vector control approaches.

### **3.4.4 Epidemic Preparedness and Response**

MCP will institute activities to check epidemics principally in three distinct phases namely before, during and after the epidemic. Before an epidemic, low-grade activity like community mobilization, health education and monitoring of malaria cases at health facilities will be undertaken. Other activities in this phase will include preparations for epidemic diagnosis and control.

The malaria specific component within the general district epidemic preparedness plans will be strengthened so as to enable districts to:

- Develop and implement district level malaria epidemic plans
- Establish and use an early warning system<sup>15</sup>
- Map epidemic prone villages and monitor malaria cases in the villages
- Ensure adequate buffer stocks of drugs, insecticides and other essential supplies

The MCP will support districts to review and update the “normal channel” with a view of increasing their sensitivity and simplicity.

The MCP will establish an emergency fund, keep emergency stocks of drugs, supplies and insecticides and establish a sensitive early warning system that is not only dependent on malaria cases.

During epidemics MCP will ensure prompt mobilization and distribution of resources, swift sharing of information, and easy mobility of patients to treatment centers. It will work with districts to establish temporary treatment centers in the hard-hit areas.

After the epidemic, MCP will review its experience with the contained epidemic so as to document experiences and use them in the future. It will develop a tool for post-event evaluation of epidemics and their control to guide the assessment.

### **3.5 Enabling /Support Strategies**

For the successful implementation of the above four key intervention strategies, the following support strategies will be necessary.

#### **3.5.1 Advocacy, IEC and social mobilization**

All partners, working in concert, will advocate with policy makers and funding agencies for malaria to receive attention and resources comparable with the burden of the disease on individuals, families, communities and the national economy. Similarly the Malaria Control Programme and individual Districts, in collaboration with other programmes and institutions, will design and implement information, education and communication activities, through a variety of channels. This will serve to increase public knowledge about malaria and so influence people’s attitudes and stimulate appropriate behaviours/practices for better health.

The programme will use a mix of channels so as to meet the needs of the different audiences. At national level the electronic and print media will be the major channel. At district level the print media will dominate while at community level interpersonal methods such as drama will be used to enhance understanding.

Efforts will be made to document events and activities that have occurred for future reference and sharing experiences with others. The Health Education and Health Promotion unit will provide the technical expertise and field network for social mobilization. The Ministry of Information will be utilized to convey malaria specific messages through television and radio programmes and newspaper articles.

### **3.5.2 Human Resource Development**

Malaria case management and general control is dynamic. It therefore requires constant updating of those assigned to manage cases, plan control strategies and implement control programmes. The programme will therefore, ensure continued update of practicing clinicians, district planners and HSD managers among others, on current malaria control approaches.

MCP will develop orientation programs on malaria for the various cadres of health workers including laboratory staff, vector control officers, environmental officers, health assistants, nursing assistants/aides, nurses, midwives, clinical officers, and doctors.

Under the decentralization policy, planning, management and implementation of programme activities are functions of districts. In many cases district managers though qualified lack specialized training in malaria, which is a very big problem under their areas of jurisdiction. The MCP in collaboration with the Regional Centre for Quality of Health Care will train health managers from Uganda and the region in basic malariology.

The Malaria Control Programme will also work with the Department of Human Resource Development (MOH) to ensure adequate integration of malaria and its control approaches in pre-service curricula.

The MCP will encourage and support regular technical supportive supervision to lower level units as a means of keeping health workers abreast with developments in malaria control.

### **3.5.3 Systems Strengthening**

The strategies cannot be implemented without adequate systems for delivery of services. Partners in malaria control will avoid creating parallel mechanisms for delivery of malaria control services where adequate systems exist or are planned. Instead support will be given at all levels to improving existing systems and to planned developments in order to ensure that malaria control needs are met and implementation progresses, where appropriate using malaria as a pathfinder for reform. Systems include infrastructure, supplies of materials and logistics, systems for contracting out specific services or other activities, funding flows and financial management.

### **3.5.4 Technical support**

From time to time MCP will seek technical support to guide and re-enforce technical skills at national, district or lower levels to fill gaps in existing capacities. Such technical support will be solicited from within and without the country.

### **3.5.5 Monitoring and evaluation including Operational Research**

The Malaria Control Programme will strengthen and maintain the system for collection, analysis and utilization of data through the established health management information system (integrated disease surveillance<sup>16</sup>, anti-malarial drug efficacy studies, mosquito-insecticide susceptibility studies, malariometric surveys, community surveys) as a means of checking on the progress and achievements. The annual targets (annex 7), targets in log frame (annex 6) and RBM baseline indices (annex 1) will serve as reference points for the monitoring and evaluation. MCP will also develop a new malaria endemicity map to replace the existing one generated in the 1960s. Following this, MCP will re-stratify the country into zones with similar epidemiological and operational characteristics and for which corresponding control packages will be developed and deployed. In the epidemic prone districts, sentinel sites will be established/strengthened to monitor weekly malaria morbidity as part of an early warning system. The malaria research working group will aim to coordinate research work pertaining to malaria and ensure that relevant questions are addressed and findings are translated into policy and implementation.

### **3.5.6 Management and supervision**

The management of the malaria control programme will get complicated as more partners and personalities of diverse background get involved in control activities. This challenge requires that MCP managers get trained in advanced management skills. MCP will avail its officers this form of training in the course of this strategic plan. This will ensure good management of the different sections of the MCP and good coordination of the different partners. It will ensure focus on the 2005 targets as shown in log frame (annex 6).



## **4. IMPLEMENTATION ARRANGEMENTS**

### **4.1 Implementation overview**

This strategic plan will be implemented nationwide in a decentralized manner, using the existing health delivery structures. Malaria control programme and the national level partners will be responsible for technical support, mobilization of resources and monitoring of quality of services and level of implementation. This will be executed under the guidance of the ICCM, which meets at quarterly intervals to review progress and decide/approve proposed activities for the subsequent period. The districts will be responsible for the district specific planning and management of local malaria control activities following the national guidelines. The District Director of Health Services (DDHS) while principally responsible will operate through a district malaria focal person who is in constant contact with the MCP for technical guidance. The district will also supervise and monitor malaria burden in the catchment area. It will also support health sub-districts in integrating malaria in the PHC budgets for which funds are remitted to this level.

These health specific structures will coordinate the other partners at a given level to ensure participation of all stakeholders in malaria control activities, using their advantaged positions in the community. A regular reporting system will be established/strengthened to ensure timely actions. It is hoped that, the programme manager (MMCH) will always be knowledgeable on national malaria situation to a precision of seven days, through this approach.

Other central functions e.g. the media will be managed centrally but with due consideration to the target areas' needs. A vertical and horizontal coordination mechanism will be established to ensure integration of malaria control with other non-health sectors at all levels.

### **4.2 Partner Roles and responsibilities**

The development and maintenance of effective collaborations and partnerships with all stakeholders at all levels is crucial for the success of the Malaria Control Programme in Uganda. These partnerships should extend beyond the MOH as outlined in sections 2.5 to 2.6 and these stakeholders should contribute to the malaria prevention and control in accordance with their comparative advantages. The principal stakeholders by level and their main roles are shown in Annex 8.

### **4.3 Annual targets and milestones**

The purpose and objectives of the strategy are summarized in the logical framework at Annex 6. The plan will be broken down into annual milestones designed to lead progressively towards achieving the 2005 targets. Indicative milestones are set out in Annex 7. These will be kept under review and refined in the light of monitoring and evaluation based on the indicators in the HSSP and selected indicators adapted from RBM monitoring and evaluation guidelines for Africa. Detailed activities, indicators, roles and responsibilities, and resources needed, will be set out in annual work plans. Meanwhile, indicative budget estimates for the National Malaria Control Programme for the period 2001-2005 are shown in Annex 8. They exclude salaries. They include capacity development activities such as training of trainers and social mobilization and ongoing activities such as monitoring and evaluation and technical support to Districts. Provision is made for replacement of vehicles and other essential

equipment needed at national level. Infrastructure and systems development at district level and service delivery costs such as drugs and other supplies and diagnostic services are not included, except for buffer supplies for epidemic control which are included.

Allowance has been made for inflation and for a projected increase in population, which will increase the cost of malaria control.

The four-year strategic plan budget will be further broken down into annual activity-based budgets, which will be finalized taking into account actual resources available to the MCP and the plans and resources of other partners.

Districts and their partners will need to go through similar exercises as part of decentralised planning and budgeting, with support from the national level as necessary.

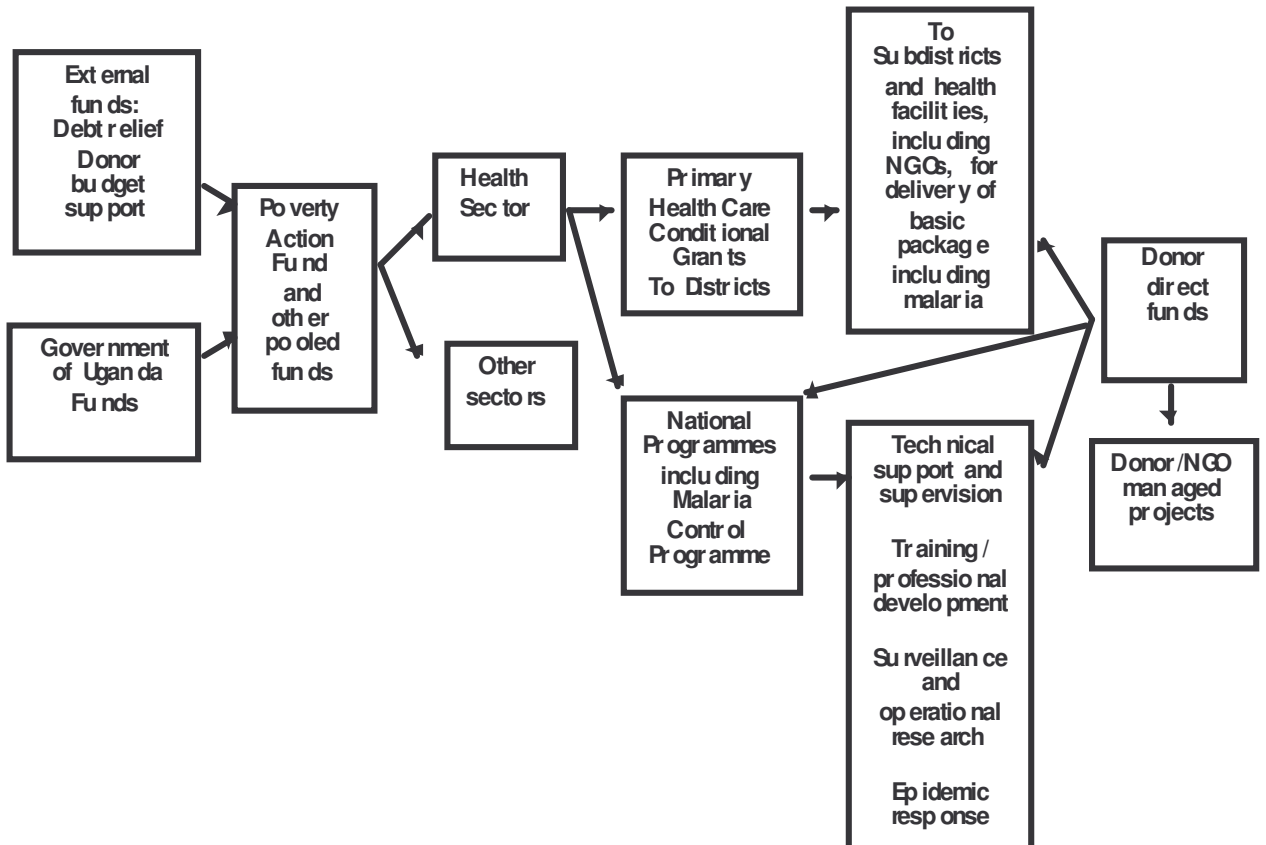
#### **4.4 Funding mechanisms**

The Poverty Action Fund (PAF) provides funding to the Primary Health Care (PHC) conditional grants to districts and support to national programmes including the MCP. In addition to the pooled funds, some development partners are continuing to fund districts and national programmes directly, and continuing to fund health projects through NGOs. The HSSP is still however short of the resources needed to meet its objectives.

The actual cost of meeting the national level responsibilities set out is estimated at approximately US\$ 10 billion for year one of the plan. An average annual increment of 10% of the previous year is provided for to cater for the inflation rate and increase in volume of work. The inflation factor may need to be revised upwards as the efficacy of cheap antimalarial drugs decreases and new more costly combinations need to be introduced. The MCP will continue to make the case for a share of government funding that reflects the burden of malaria and its impact on poverty and some of these funds may be channeled through other sectors. There is a need to raise additional resources and the MCP will actively lobby and advocate for the mobilization of resources for malaria activities within and outside the health sector. Following is an illustration of sources and channels of funding for malaria.

---

## Sources and channels of funding for malaria control within the public sector



---

#### 4.5 Summary of the Budget of the national Programme in US\$.

##### Budget Summary

1	Case management	<b>12,830,000</b>	<b>13,060,472</b>	<b>13,559,219</b>	<b>13,804,994</b>	<b>53,254,685</b>
2	Intermittent Presumptive treatment IPT	<b>128,889</b>	<b>117,778</b>	<b>127,556</b>	<b>138,311</b>	<b>512,534</b>
3	Vector Control	<b>5,191,361</b>	<b>6,036,588</b>	<b>3,623,907</b>	<b>2,844,980</b>	<b>17,696,836</b>
4	Epidemic preparedness and response	<b>1,111,111</b>	<b>1,222,222</b>	<b>1,344,444</b>	<b>1,478,889</b>	<b>5,156,666</b>
5	Advocacy, IEC and social Mobilization	<b>555,556</b>	<b>611,111</b>	<b>672,222</b>	<b>739,444</b>	<b>2,578,333</b>
6	Human Resource development	<b>500,000</b>	<b>550,000</b>	<b>605,000</b>	<b>665,500</b>	<b>2,320,500</b>
7	Systems strengthening	<b>127,778</b>	<b>140,556</b>	<b>154,611</b>	<b>170,072</b>	<b>593,017</b>
8	Technical support	55,556	61,111	67,222	73,944	257,833
9	Monitoring and Evaluation including Operational Research	<b>233,333</b>	<b>256,667</b>	<b>282,333</b>	<b>310,567</b>	<b>1,082,900</b>
10	Management and Supervision	<b>666,667</b>	<b>1,222,222</b>	<b>1,344,444</b>	<b>1,478,889</b>	<b>4,712,222</b>
	<b>Grand total</b>	<b>21,400,251</b>	<b>23,278,727</b>	<b>21,780,958</b>	<b>21,705,590</b>	<b>88,165,526</b>

**Annual inflation rate of 10% was applied to the budget of the preceding year except in 1.3 and 9.5**

A detailed budget is attached as annex 9

## **5. BUDGET JUSTIFICATION**

### **5.1. Case management**

It is estimated that 50% of the drug demand will be met by the private sector and the remaining 50% by the public/NGO sector. This budget caters for the 50% that will be provided in the public sector. The drug provision is made for 4.2 million children less than 5 years, six episodes of malaria per child per year and using a combination therapy of CQ and SP. It is estimated that a dose of pre-packed CQ + SP for treating an under-five will cost 0.11 US \$.

Provision is made for 18 million adults at an average of 2 episodes per year at a cost of 0.22 US \$ per dose.

Provision has been made for 10% of fever episodes that may not respond to first line treatment and require oral quinine at a cost of 2.3 US \$ per dose.

The budget also caters for severe malaria episodes estimated at 5% of all episodes which will require administration of potential quinine and IV dextrose at a cost of 11 US \$ per episode. A factor of 2.5% population growth rate has been built in for the subsequent years.

There is urgent need to produce manuals and guidelines for the work force on combination therapy, IPT, ITN and home management of fever strategy. This budget makes provision for development and updating, pre-testing, mass production, and distribution of the different manuals/guidelines.

In addition, there will be training and updating health workers on the new policy and HBMF strategy, which will require additional resources.

### **5.2 . Intermittent Presumptive Treatment**

Provision is made for 2 doses of SP for 1.21 million pregnant mothers a year, at a cost of 0.11 US \$ per dose. A factor of 2.5% population growth rate has been built in for the subsequent years.

### **5.3. Vector control**

#### **5.3.1 Insecticide Treated Nets**

The primary targets for ITN use are 4.2 million children under five years and 1.21 million pregnant mothers. The MCP in line with the Abuja Declaration intends to achieve 60% ITN coverage within this target group, which is 5,139,500 nets over the 4 years. The estimated bed net use currently is 5%. The public sector will cater for 35%, which is the estimated population living below the poverty line. Over the 4 years, it is expected that 10% of the nets will be replaced. Each net costs 4 US \$ and will require 8 re-treatments over this period, at a cost of 0.6 US \$ per treatment.

Provision has been made for promotion of ITN use and management of the voucher system at 10% of the cost of nets.

#### **5.3.2 Indoor Residual Spraying (IRS)**

Provision has been made for procurement of insecticides, pumps and spare parts. Cost of training of trainers followed by cascade training, monitoring of spraying quality using bioassays and evaluation of the impact of IRS has been catered for.

#### **5.4. Epidemic Preparedness and Response**

There are 13 epidemic-prone districts that will require support from the center in form of technical support plus additional drugs, insecticides and other supplies during the epidemic. District level epidemic-preparedness and response plans will also be funded. The budget is also catering for buffer stocks of drugs and insecticides for use in emergency situations.

#### **5.5 Advocacy, IEC and Social Mobilisation**

Although the majority of the people are aware about malaria, their knowledge on malaria and its control interventions is still low and there is therefore need to guide the population through social mobilization. Social mobilization for the involvement of communities in community-based malaria control activities will be based on effective community IEC programmes for behavioural change.

Sensitisation of political leaders at the national and district levels, development and production of IEC materials and social mobilisation at district level has been catered for. Participation in national and international days including conferences has been included.

#### **5.6 Human Resources Development**

Provision has been made for training district and health sub-district level managers in malaria prevention and control approaches and integrating malaria into the pre-service curriculum. Public and private health practitioners will also be targeted.

#### **5.7. Systems Strengthening**

To strengthen the diagnostic capacity for malaria at designated health facilities, provision has been made for procurement of microscopes and laboratory consumables.

#### **5.8. Technical Support**

Periodic technical support will be sought from within and without the country. The budget caters for consultant's fees and other logistic support during missions. It is estimated that about 3 to 4 missions may be hosted every year as the need arises.

#### **5.9. Monitoring and Evaluation including Operational Research**

Monitoring of this plan will depend on both the routine data and special surveys. Provision has been made for strengthening existing IDSR and HMIS through joint supervision and sharing resources.

Sentinel districts and sentinel sites have been established for monitoring RBM, drug efficacy and mosquito susceptibility to insecticides. Although some of the data is available through the routine system, the bulk will be done through special annual surveys.

Mapping malaria risk is also to be funded. Due to the enormity of the task, the work will be staggered over the lifetime of the plan hence the need for funding each year.

Operational research will be a critical part of the Strategy. One of the outputs of monitoring and evaluation exercises will be to identify areas in which operational research will be conducted. Operational research by independent researchers or commissioned by the MCP has also been catered for and will cover all aspects of the various malaria control strategies.

### **5.10. Management and Supervision**

The National Malaria Control Programme plus national level management and coordination will be supported by this budget.

Funds will be required for holding coordination meetings of the ICCM and the Technical Working Groups on malaria. Inter-sectoral collaboration is very key to the RBM objectives of bringing in all partners to participate in malaria control activities. Indeed, the implementation of development projects such as irrigation schemes, dams, road construction, fish pond construction, brick making, etc, usually results in the creation of suitable habitats for malaria vectors and ultimately, in the increase in the incidence of malaria. Inter-sectoral collaboration would minimize the negative impact of such projects on mosquito control efforts.

Funds will be required to support Zonal Coordinators for Malaria/IMCI who are designated to support districts and lower health structures.

- ◆ Funds will be needed for coordination meetings, office support and for field work especially technical support supervision as well as for monitoring and evaluation of malaria programme activities.
- ◆ Funds will also be extended to districts for planning malaria control activities at district level
- ◆ Further support will be extended to districts and lower level health facilities in order to support communities to control malaria, particularly social mobilization for implementation of home-based management of fever (HBMF), intermittent presumptive treatment (IPT) and ITMs promotional activities.
- ◆ Further support will be extended to districts to organize quarterly coordination meetings between the different stakeholders/partners: public, NGO and the private sectors, to review the activities of each sector and to chart the way forward in the implementation of malaria control, activities at the district level
- ◆ Further support will be extended to community leaders to facilitate social mobilization of the local communities to participate in community-based malaria control activities.

Further support will be required to organize quarterly malaria strategy review meetings at national, regional (zonal) and district levels.

Because of the shortage of qualified health staff in the districts, technical support supervision of district health staff will therefore guide and help improve the performance of the district health in service delivery. Technical support supervision to the districts will be carried out on a quarterly basis.

## 6. REFERENCES

- 1 MOH. 1995 Burden of Disease Study in Uganda. Unpublished report.
- 2 MOH Malaria Control Programme. Malaria Update 2000. Unpublished report.
- <sup>1</sup>Uganda Bureau of Statistics 2000. Uganda National Household Survey 1999/2000
- <sup>2</sup> MOH 2001. Baseline Survey for Monitoring and Evaluation of RBM Indicators in Uganda. Unpublished report.
- <sup>3</sup> Roll Back Malaria initiative in the African region (2000). Monitoring and evaluation guidelines. WHO regional Office for Africa, Harare.
- <sup>4</sup> Bureau of Statistics Uganda and Macro International Inc. 2001 Uganda Demographic and Health Survey 2001 Preliminary Report
- <sup>5</sup> Ndyomugenyi R. Mugnussen P. Anaemia in pregnancy. Plasmodium falciparum infection as an important cause in primigravidae in Hoima district. Western Uganda. Ann Trop Med & Parasitology 1999; 93 (5): 457 – 465
- <sup>6</sup> Press Release WHO/28, 25 April 2000, Economic costs of malaria are many times higher than previously estimated
- <sup>7</sup> MOH 2000. IMCI Unit. Unpublished Report
- <sup>8</sup> Ministry of Finance Planning and Economic Development 2000. Uganda's Poverty Eradication Action Plan: Summary and Main Objectives
- <sup>9</sup> MOH 1999. National Health Policy
- <sup>10</sup> MOH 2000. Health Sector Strategic Plan 2000/2001 to 2004/2005
- <sup>11</sup> EANMAT (1997) The East African Network for Monitoring Anti-malarial Treatment Efficacy Project Memorandum for Ministries of health, Kenya, Uganda, Tanzania to DFID, UK October 1997
- <sup>12</sup> MOH-2000 Anti-malarial drug Policy in Uganda. Unpublished document
- <sup>13</sup> Roll Back Malaria, WHO (2001). Malaria Early warning System. Concepts, Indicators and partners. A framework for field research in Africa. *WHO/CDS/RBM/2001.32*
- <sup>14</sup> WHO – Regional Office for Africa (1999). Integrated Disease Surveillance in the African Region. A regional strategy for communicable diseases. 1999-2000.



**Annex 1: RBM baseline indicators survey results:** *This table summarises the results of a baseline survey conducted in 4 Districts (i.e. Apac, Tororo, Mubende and Kabale) in Uganda in 2001<sup>4</sup>*

No	Indicator	Definition	Results
1.	Crude death rate (under five)	Numerator: number of deaths of children (alive and died at the age less than 60 months)  Denominator: total number of children age less than 120 months from the point of interview	78.04 per1000
2.	General mortality attributed to malaria (all ages)	Numerator: number of deaths attributed to malaria reported per year  Denominator: total number of inpatient deaths reported	34.5%
3.	General mortality attributed to malaria (under five)	Numerator: number of deaths (under five) attributed to malaria reported per year.  Denominator: total number of inpatient deaths (under five) reported	42.9%
4.	General mortality attributed to malaria (5 and above)	Numerator: number of deaths (5 and above) attributed to malaria reported per year  Denominator: total number of inpatient death (5 and above) reported	25.1%
5.	General morbidity attributed to malaria (all ages)	Numerator: number of malaria cases (uncomplicated/severe) reported per year Denominator: total number of outpatient cases seen	38.8%
6.	Morbidity attributed to malaria (under five)	Numerator: number of malaria cases (uncomplicated/severe) in children under five reported per year Denominator: total number of under 5 out patient cases seen	44.4%
7.	Morbidity attributed to malaria (5 and above)	Numerator: number of malaria cases (uncomplicated/severe) in 5 years and above reported per year. Denominator: total number of 5 years and above outpatient cases seen	41.6%
8.	Case fatality rate(under five)	Numerator: number of deaths attributed to malaria inpatients in children under five. Denominator: total number malaria cases in children under five admitted.	4.05%
9.	Case fatality rate (5 and above)	Numerator: number of deaths attributed to malaria inpatients in 5 years and above Denominator: total number of malaria cases in 5 years and above admitted	2.18%

No	Indicator	Definition	Results
10.	% of under fives with malaria attack/fever getting appropriate treatment within 24 hours of onset	Numerator: number of children under 5 who were reported to have had fever in the previous 2 weeks and reported to have received the locally recommended treatment within 24 hours of the onset of the fever. Denominator: total number of children under 5 surveyed who are reported to have had fever in the previous 2 weeks	7.3%
11.	% of fever/uncomplicated malaria cases(all ages) correctly managed at health facilities.	Numerator: number of all cases with fever/uncomplicated malaria adequately managed at health facilities Denominator: total number fever/uncomplicated malaria cases	27.6%
12.	% of children under five with severe malaria correctly managed at health facilities	Numerator: number of children under 5 with severe malaria correctly managed at health facilities (<60 months) Denominator: total number of children under 5 admitted at health facilities (<60 months)	38.9%
13.	% of five years and above with severe malaria correctly managed at health facilities	Numerator: number of 5 years and above with severe malaria correctly managed at health facilities (>60 months) Denominator: total number of 5 years and above admitted at health facilities (>60 months)	48.4%
14.	% of health facilities with no stock out of nationally recommended anti-malarial drugs continuously for one week during the last 3 months	Numerator: number of health facilities with no stock out of CQ (tablet or injection), quinine, <u>and</u> SP continuously for one week during the last 3 months Denominator: total number of health facilities surveyed	13.3%
15.	a) % of under fives sleeping under mosquito net b) ITN	Numerator: number of children under 5 who slept under a mosquito nets during the previous night (<60 months old) Denominator: total number of children under 5 surveyed	11.8% 2%
16.	% of mosquito nets treated with insecticide	Numerator: number of mosquito net treated with insecticide within the past 12 months. Denominator: total number of mosquito nets available in households	9.8%
17.	% of households having at least one ITN	Numerator: number of households surveyed having at least one ITN Denominator: total number of households surveyed	17.6%
18.	% of pregnant women sleeping under treated mosquito net	Numerator: number of pregnant women (currently or within the past 6 months) who are sleeping/slept under an ITN during the pregnancy Denominator: total number of pregnant women (currently or within the past 6 months) surveyed	2.3%

No	Indicator	Definition	Results
19.	% pregnant women on anti-malarial chemoprophylaxis according to national policy	Numerator: number of pregnant women (currently or within the past 6 months) who took malaria prophylaxis during pregnancy. Denominator: total number of pregnant women surveyed	8.6%
20.	(i). # of malaria epidemics detected within 2 weeks of onset and properly controlled (ii) Properly controlled	Numerator: number of epidemic detected within 2 weeks in the country during the last 3 years for which appropriate control measures were taken Denominator; number of malaria epidemics recorded during the last 3 years in the country	0% 100%
21.	Proportion of districts accelerating the implementation of RBM according to the national guidelines	Numerator: number of districts accelerating the implementation of RBM according to national guidelines Denominator: total number of districts surveyed	100%
22.	% of total agreed national RBM budget met by RBM partners	Numerator: amount of total national RBM budget met by RBM partners Denominator; amount of total national RBM budget agreed upon by RBM partners	59.8%

### Summary RBM monitoring and evaluation supplementary indicators for Uganda

No	Indicator	Results
	<b>HEALTH FACILITY SURVERYS</b>	
1.	Proportion of health facilities with a defined and mapped catchment area	56.3%
2.	Proportion of health facilities providing integrated services (e.g., antenatal, EPI, growth monitoring, and ITN promotion)	37.5%
3.	Average percentage of staff who have attended in-service training in malaria case management within the last 2 years.	18.3%
4.	Average percentage of staff who have attended in-service training in IMCI training within the last 2 years	26.2%
5.	Proportion of health facilities that have received Administrative or technical supervisory visit in the last three months	81.3%
6.	Proportion of health facilities that use data for planning.	18.8%
	<b>OUT-PATIENT</b>	
7	Proportion of health facilities with correctly filled OPD registers.	62.5%
8.	Proportion of health facilities with summary graphs and tables displayed.	43.8%
9.	Proportion of health facilities with functional malaria diagnostic set and treatment guidelines.	18.8%
10.	Proportion of health facilities with health education materials on malaria displayed	37.5%
11.	Proportion of out-patient cases due to malaria (confirmed)	3.6%
	<b>IN-PATIENT</b>	
12.	Proportion of health facilities with correctly filled out inpatient register cards	40%

No	Indicator	Results
13.	Proportion of health facilities with no stock out of infusion giving sets, syringes, gauze, and cotton wools for one week in the last 3 months	40%
14.	Proportion of health facilities with no stock out of intravenous infusion, 5% or 50% Dextrose continuously for one week in the last 3 months	50%
15.	Proportion of health facilities with an officer in Charge who organises a weekly/monthly review of patient records	40%
16.	Proportion of all inpatient cases due to malaria	38.4%
17.	Proportion of under five inpatient cases due to malaria (clinical and confirmed)	50.2%
18.	Proportion of five years and above inpatient cases due to malaria (clinical and confirmed)	29.6%
19.	Proportion of all inpatient malaria cases which are confirmed	21.7%
20.	Proportion of health facilities with a functional laboratory	66.7%
21.	Proportion of health facilities with a functioning microscope conduction parasite identification	63.6%
22.	Proportion of health facilities with a functioning microscope determining parasite densities for all positive cases	18.2%
23.	Proportion of health facilities with laboratories that have not experienced any stock out of laboratory consumables continuously for one week in the past 3 months	70%
24.	Proportion of pharmacy/dispensaries that has registers/medication cards/log books/ledgers correctly filled out	66.7%
25.	Proportion of health facilities with no stock out of nationally recommended anti-malarial drugs continuously for one week during the last 3 months	13.3%
26.	Proportion of health facilities with no stock out of Chloroquine tablets continuously for one week during the last 3 months	66.7%
27.	Proportion of health facilities with no stock out of Chloroquine injection continuously for one week during the last 3 months	53.3%
28.	Proportion of health facilities with no stock out of SP tablets continuously for one week during the last 3 months	46.7%
29.	Proportion of health facilities with no stock out of quinine tables continuously for one week during the last 3 months	14.3%
30.	Proportion of health facilities with no stock out of Quinine injection continuously for one week during the last 3 months	33.3%
31.	Proportion of health facilities that received administrative and/or technical supervision in the last 3 months	53.3%
	<b>COMMUNITY SURVEYS</b>	
32.	Proportion of mothers/guardians of children under 5 taking any action within 24 hours of fever onset	39.2%
33.	Proportion of mothers/guardians of children under 5 using self-medication at home as the first action within 24 hours	47.6%
34.	Proportion of mothers/guardians of children under 5 going to the health facility/CHAs as the first action within 24 hours	24%
35.	Proportion of mothers/guardians of children under 5 going to drug vendors as the first action within 24 hours	15.6%
36.	Proportion of mothers/guardians of children under 5 using traditional healers as the first action within 24 hours	1.7%

No	<b>Indicator</b>	<b>Results</b>
37.	Proportion of pregnant women sleeping under mosquito net during current pregnancy or during 6 months of last pregnancy	13.1%
38.	Proportion of population sleeping under mosquito nets	10.9%
39.	Proportion of <5 sleeping under mosquito net	8.2%

## **Annex 2: Terms of reference for the malaria control unit, zonal teams and district malaria focal persons**

### **The Malaria Control Unit**

1. Policy formulation.
2. Planning, monitoring and evaluation of programme implementation.
3. Developing and production of guidelines, training materials and IEC materials.
4. Ensuring timely implementation of planned activities.
5. Advocacy and resource mobilisation for malaria control.
6. Capacity building at the District level for malaria control programme management.
7. Coordination of malaria control activities and collaboration with other Ministry of Health programmes.
8. Integration of malaria control activities with IMCI.
9. Coordination of all malaria research and promotion of operational research.
10. Developing a database on malaria control activities.
11. Establishing a strong communication system with the districts and other partners.
12. Update of antimalarial drug policy based on information from drug efficacy studies.
13. Monitoring the availability of efficacious antimalarial drugs in collaboration with the National Drug Authority.
14. Creation and publication of a quarterly newsletter on malaria.
15. Preparation and dissemination of monthly reports including financial returns

### **The Zonal Teams**

The **overall objective** of the zonal teams is to support the centre in coordinating planning, implementation, supervision, monitoring and evaluation of MCP and IMCI activities in their respective geographical regions/zones.

The **specific objectives** are

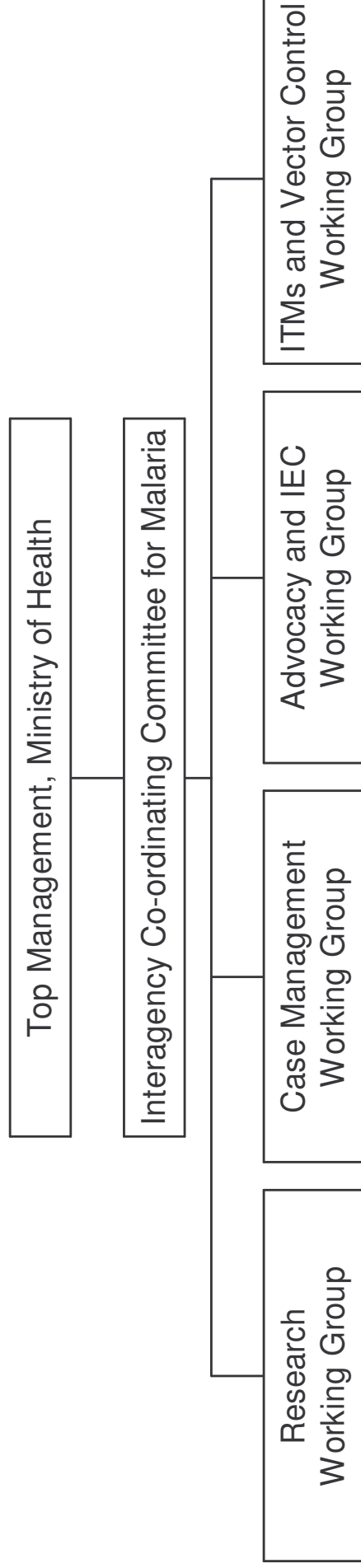
1. To guide each district in the zone in identifying a district focal person and a functional working group.
2. To assist districts to plan for IMCI and Malaria Control.
3. To build capacity for training by assisting the districts to identify, train and supervise trainers.
4. To coordinate and monitor training activities in the zone including follow-up. This relates to in-service with particular emphasis on the quality of clinical instruction. For pre-service training, to supervise the tutors in pre-service schools in monitoring quality of clinical instruction.
5. To assist the districts to build capacity for monitoring and supervision.
6. To support the district working groups in identifying and solving operational problems.
7. To assist each district in the zone to establish, maintain and utilise a database on Malaria Control and IMCI activities and supervision.
8. To maintain a data bank and a regular two-way flow of information between the central programmes, zones and districts.
9. To advocate for the programmes in general and for specific activities and resources.
10. To carry out other duties as specified by MCU and/or the IMCI national working groups.

### **District Malaria Focal Persons**

The district focal persons will:

1. Coordinate the planning, implementation and supervision of malaria prevention and control in the district.
2. Compile, analyse and disseminate malaria control data in the district.
3. Promote a multisectoral approach to malaria prevention and control as well as ensuring collaboration with NGOs and the private sector.
4. Ensure use of quality antimalarials in the district in collaboration with the District Drug Inspector.
5. Monitor the performance of health workers to ensure uniform prescribing habits in the district.

**Annex 3: Framework for Overall Coordination**



**Note:**

The ICCM may also set up time-limited task forces for specific projects as need arises, reporting to the ICCM or to one of the working groups. Past examples include the Task Force on Malaria Treatment Guidelines, the Task Force on Training of Health Workers, the Task Force on Drug Procurement and the Task Force on Intermittent Presumptive Treatment.



#### **Annex 4: Terms of reference and membership of the Inter Agency Coordination Committee on Malaria**

- i. Policy formulation in the area of malaria control.
- ii. Regular review and endorsement of the national level work plans for malaria control
- iii. Advocacy for support for malaria control in Uganda.
- iv. Mobilization of resources for the Malaria Control Programme from within Uganda and outside the country.
- v. Building a strong partnership in malaria control by coordinating all inputs and resources available for malaria control both from within and outside the country.
- vi. Provision of technical and programmatic advice on malaria control issues as and when they arise.
- vii. Monitoring and evaluation of malaria control programme activities in order to identify gaps and strengths.
- viii. Assisting in consolidating the identified strengths and removing or reducing the gaps.

#### **Membership of the ICCM**

The chairman of the committee will be the Hon. Minister of Health

The members of the committee will be the following

Director General of Health Services

Directors of Health Services

Commissioners of Health Services

Programme Manager / MCP

Headquarters staffs of MCP

Programme manager of IMCI

Headquarters staffs of IMCI

Development partners

Ministry of Education and Sports

Ministry of Planning and Economic Development

Ministry of Local Government

Ministry of Gender, Labour and Social Services

## **Annex 5: Terms of reference for the ICCM working groups**

### **Case Management Working Group**

Advice to the ICCM and MCP on:

- Development and updating of guidelines for effective management of malaria at various levels, including the household.
- Continuous monitoring of the quality and efficacy of anti-malaria drugs, and availing relevant data for updating the national anti-malarial drug policy.
- Assessment of the needs and regulation of procedures for procurement, warehousing and distribution of anti-malarial drugs in the country.
- Designing and disseminating curricula for training in-service health workers and pre-service health workers in training institutions.
- Liaising with the National Drug Authority to enforce regulatory procedures to ensure availability of safe and potent anti-malarial drugs on the market.
- Ensuring availability of basic diagnostic aids, regular evaluation and advising on up-to-date diagnostic procedures, to facilitate easy case identification at all levels.

### **Insecticide treated materials and Vector Control Working Group**

Advice to the ICCM and MCP on:

- Carrying out malaria vector situation analysis in districts
- Carrying out malaria vector taxonomic/behavior/ecological studies
- Testing new malaria vector control technologies (including pilot trials)
- Evaluation of performance of insecticide treated materials (ITMs)
- Capacity building in districts (through workshops, etc)
- Support supervision to districts
- Monitoring and evaluation of malaria vector control interventions
- Participation in development of IEC materials (relevant to malaria vector control)
- Promotion of a multi-sectoral approach to malaria vector control and ensuring collaboration with the NGO and private sectors and other interested national and international training/research intuitions

### **Advocacy and IEC Working Group**

Advice to the ICCM and MCP on:

- Identifying gaps in the current malaria IEC advocacy interventions
- Identifying targets for IEC advocacy at various levels.
- Defining methods of mobilizing the different targets for IEC advocacy
- Defining facilitation (resources and tools) needed for implementation of malaria social mobilization
- Defining mechanisms to enhance malaria social mobilization at community levels.
- Defining monitoring mechanisms for IEC advocacy strategies
- Compiling an action plan for IEC advocacy on malaria.

## **Research Working Group**

Advice to the ICCM, MCP and research partners on:

- Accelerating and strengthening malaria research in the country
- Building interest groups/committees/partnerships
- Bridging the gap and promoting dialogue between researchers, policy makers and implementers
- Developing and disseminating priority areas in malaria research
- Coordinating malaria research
- Mobilising resources for malaria research

**Annex 6: Logical Framework**

Narrative	Output/target for 2005	Objectively verifiable indicators	Means of Verification	Assumptions
<b>Goal (HSSP goal)</b>				
<ul style="list-style-type: none"> <li>• Expanded economic growth</li> <li>• Increased social development</li> <li>• Poverty Eradication</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum Health Care package delivered country wide</li> <li>• Health Organisation and management system strengthened</li> <li>• Legal and regulatory framework established and operational</li> <li>• Integrated Support systems strengthened and operational</li> <li>• Policy, planning &amp; HMIS systems operational.</li> <li>• Applied R &amp; D programme coordinated and implemented</li> <li>• </li> </ul>	<ul style="list-style-type: none"> <li>• Investment, business growth, production levels, exports, agricultural production etc</li> <li>• Increased participation of civil society (governance indicators)</li> </ul>	<ul style="list-style-type: none"> <li>• Line ministries</li> <li>• Demographic surveys</li> <li>• Studies</li> </ul>	<p>Ministry of finance and Economic Development continues to monitor these</p>
<b>Purpose</b>				
<p>To prevent and control malaria morbidity and mortality</p>	<p>Malaria-specific mortality in the under-five population reduced by 50% by 2005</p> <p>Malaria-specific morbidity in the under-five population reduced by 50% by 2005</p>	<p>Malaria-specific mortality in health facilities and the community</p> <p>Malaria-specific morbidity in health facilities and the community</p>	<p>Health facility records, periodic community surveys</p>	<p>Effective affordable drugs and insecticides available</p> <p>Health Infrastructure and Systems development targets within HSSP are met</p>
<b>Objectives</b>				

Narrative	Output/target for 2005	Objectively verifiable indicators	Means of Verification	Assumptions
To increase the proportion of the population that receive effective treatment for malaria within 24 hours of the onset of symptoms	Proportion of malaria cases receiving effective treatment according to national guidelines increased from 30% to 60% by 2005	Proportion of cases treated according to guidelines in health facilities and in the community	Health facility records, supervision reports, periodic community surveys	Resources and supplies available Access to health facilities improved Effective drugs available and drug resistance controlled
To provide pregnant women with protection against malaria through intermittent presumptive treatment with SP and other preventive measures	60% of pregnant women receiving a full course of IPT according to national guidelines by 2005	Proportion of women attending antenatal services and receiving IPT according to guidelines	Health facility records, surveys in baseline units, community surveys	Resources and supplies available Access to health facilities improved Effective drugs available Sufficient and affordable treated nets supplied
	60% of pregnant women sleeping under an insecticide treated net by 2005	Percentage of mothers who sleep under a treated net during their pregnancy	Community surveys	
	80% of cases of malaria among pregnant women receiving prompt case management according to national guidelines by 2005	Percentage of pregnant women who present with overt malaria treated according to national guidelines	Prescription analysis in health unit records	
To increase the proportion of children aged under five years protected by ITMs	Proportion of children aged under five years sleeping under an insecticide treated net Increased from 5% to 50% by 2005	Percentage of children aged under five years who sleep under insecticide treated mosquito nets	Community surveys	Sufficient and affordable treated nets supplied

## Annex 7: Annual Targets by objectives.

<b>ANNUAL TARGETS BY OBJECTIVE AND YEAR OF IMPLEMENTATION.</b>					
<b>Objective</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
To increase the proportion of the target population receiving effective treatment for malaria within 24 hours of the onset of symptoms to 60%.	50% of households have access to treatment schedules and drugs.	70% of households have access to treatment schedules and drugs.	90% of households have leaflets on treatment of uncomplicated malaria.	60% of drug shops able to give correct advice on treatment of fevers.	90% of households have simple treatment charts and pre-packed drugs.
	60% of caretakers able to recognize malaria and take appropriate actions.	70% of caretakers able to recognize malaria and take appropriate actions.	80% of caretakers able to recognize malaria and take appropriate actions immediately.	95% of caretakers able to recognize malaria and take appropriate actions.	95% of caretakers able to recognize malaria and take appropriate actions.
	60% of Health Units with at least one health worker, trained in IMCI Or Malaria.	80% of Health Units with at least one health worker, trained in IMCI Or Malaria, & supplied with anti-malaria drugs regularly	60% of Health Units with at least two health workers, trained in IMCI Or Malaria regularly supervised & supplied with appropriate anti-malaria drugs.	80% of Health Units with at least two health workers, trained in IMCI Or Malaria, regularly supervised & supplied with appropriate anti-malaria drugs.	80% of Health Units with at least two health workers, trained in IMCI Or Malaria, regularly supervised & supplied with appropriate anti-malaria drugs.
	10% of malaria patients getting appropriate treatment with in 24Hrs of onset of symptoms.	25% malaria patients getting appropriate treatment with in 24Hrs of onset of symptoms	40% malaria patients getting appropriate treatment with in 24Hrs of onset of symptoms	50% malaria patients getting appropriate treatment with in 24Hrs of onset of symptoms.	60% of malaria patients getting appropriate treatment within 24Hrs of onset of symptoms.

Objective	Year 1	Year 2	Year 3	Year 4	Year 5
<p>To increase the proportion of pregnant women receiving intermittent presumptive treatment with SP to 60%.</p>	<p>30% of districts introduced to IPT and have plans with IPT. 50% of Health Units with at least one health worker trained in IPT &amp; supplied with guidelines</p>	<p>70% of districts introduced to IPT and have plans with IPT. 80% Health Units with at least one health workers trained in IPT &amp; supplied with guidelines.</p>	<p>50% of districts disbursing funds for IPT as per plans. 60% Health Units with at least two health workers trained in IPT &amp; supplied with guidelines &amp; supervised.</p>	<p>70% of districts disbursing funds for IPT as per plans. 80% Health Units with at least two health workers trained in IPT &amp; supplied with guidelines &amp; supervised.</p>	<p>90% of districts disbursing funds for IPT as per plans. 80% Health Units with at least two health workers trained in IPT &amp; supplied with guidelines &amp; supervised.</p>
<p>To increase the proportion of children under 5 protected by ITNs to 50%.</p>	<p>30% of public places with IPT promotional posters. 30% of pregnant women at ANC, &amp; on return visits understand reasons for IPT. 10% of pregnant women receive IPT 30% of all districts have at least two established Outlets for ITNs.</p>	<p>60% of public places with IPT promotional posters. 50% of pregnant women at ANC, &amp; on return visits understand reasons for IPT. 25% of pregnant women receive IPT 60% of all districts have at least two established Outlets for ITNs.</p>	<p>80% of public places with IPT promotional posters. 70% of pregnant women at ANC, &amp; on return visits understand reasons for IPT. 40% of pregnant women receive IPT 50% of all districts have at least four established Outlets for ITNs.</p>	<p>90% of public places with IPT promotional posters . 90% of pregnant women at ANC, &amp; on return visits understand reasons for IPT. 50% of pregnant women receive IPT 70% of all districts have at least four established Outlets for ITNs.</p>	<p>90% of public places with IPT promotional posters . 90% of pregnant women at ANC, &amp; on return visits understand reasons for IPT. 60% of pregnant women receive IPT 60% of all districts have more than five operational ITN outlets. 90% of households know the role of ITNs in malaria control 90% of the public places have ITN promotional posters. 25% of Households with at least one ITN. 15% of children aged less than five years regularly sleeping under ITNs.</p>

<b>Objective</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
To reduce malaria case fatality at hospital level to 3%.	<p>20% of Hospitals &amp; HC IVs with functional laboratories.</p> <p>30% of health center IIs able to give pre-referral treatment for malaria.</p> <p>30% of Hospitals &amp; HC IVs able to provide 24Hrs emergency supportive care</p> <p>30% of Hospitals &amp; HC IVS with arrangements to receive &amp; attend to referred patients.</p>	<p>35% of Hospitals &amp; HC IVs with functional laboratories.</p> <p>50% of health center IIs able to give pre-referral treatment for malaria.</p> <p>50% of Hospitals &amp; HC IVs able to provide 24Hrs emergency supportive care</p> <p>50% of Hospitals &amp; HC4 with arrangements to receive &amp; attend to referred patients.</p>	<p>50% of Hospitals &amp; HC IVs with functional laboratories.</p> <p>70% of health center IIs able to give pre-referral treatment for malaria.</p> <p>70% of Hospitals &amp; HC IVs able to provide 24Hrs emergency supportive care</p> <p>70% of Hospitals &amp; HC4 with arrangements to receive &amp; attend to referred patients.</p>	<p>70% of Hospitals &amp; HC IVs with functional laboratories.</p> <p>80% of health center IIs able to give pre-referral treatment for malaria.</p> <p>90% of Hospitals &amp; HC IVs able to provide 24Hrs emergency supportive care</p> <p>80% of Hospitals &amp; HC4 with arrangements to receive &amp; attend to referred patients.</p>	<p>80% of Hospitals &amp; HC IVs with functional laboratories.</p> <p>90% of health center IIs able to give pre-referral treatment for malaria.</p> <p>95% of Hospitals &amp; HC IVs able to provide 24Hrs emergency supportive care</p> <p>90% of Hospitals &amp; HC4 with arrangements to receive &amp; attend to referred patients.</p>



## Annex 8: Partner Roles and Responsibilities

<b>Level</b>	<b>Partner</b>	<b>Roles and responsibilities</b>
<u>Family</u>	Mothers, fathers, siblings, relatives & caretakers.	<ul style="list-style-type: none"> <li>● Recognise fever &amp; seek treatment early.</li> <li>● Address priority health needs for children and pregnant women to use ITNs</li> <li>● Ensure timely referrals if sickness worsens.</li> <li>● Allocate resources for procurement of anti-malarial drugs, insecticide treated nets, transport of patients to health facilities for appropriate care as well as food supplements for sick children.</li> <li>● Ensure proper peri-domestic environmental sanitation as a measure against mosquito breeding</li> <li>● Ensure compliance with treatment regimens.</li> </ul>
<u>Community</u> (Parish & Village)	Civic & elected leaders, CBOs, PDCs, community resource persons (CRPs) & faith based leaders.	<ul style="list-style-type: none"> <li>● Mobilise the people for communal malaria control exercises.</li> <li>● Organise and manage community-based treatment services.</li> <li>● Promote and monitor use of ITMs</li> <li>● Pass/lobby for appropriate byelaws etc.</li> <li>● Mobilise the people and advise clients to take their children for treatment.</li> <li>● Raise funds locally</li> </ul>
<u>District</u> (Health – Sub-district and Sub-county)	District authorities	<ul style="list-style-type: none"> <li>● Allocate necessary resources for malaria control</li> <li>● Ensure cross-sector collaboration and foster and facilitate partnerships on malaria control with NGOs etc.</li> <li>● Advocate for increased priority and resources for malaria control</li> <li>● Ensure appropriate legislation</li> </ul>

Level	Partner	Roles and responsibilities
	District Health Teams	<ul style="list-style-type: none"> <li>• Plan, mobilise &amp; allocate resources for malaria control &amp; prevention.</li> <li>• Build and maintain partnerships on malaria control</li> <li>• Liaise with other sectors to harmonise plans and activities</li> <li>• Ensure harmonization of malaria control with other programmes, especially IMCI and Reproductive Health</li> <li>• Ensure availability of quality antimalarials and other supplies in the district</li> <li>• Support sub-districts in planning and capacity development of health workers</li> <li>• Ensure adequate surveillance monitoring and evaluation of malaria control activities within the district</li> <li>• For epidemic-prone districts, plan, budget for and implement effective epidemic preparedness and response</li> </ul>
District (Health – Sub-district and Sub-county)	Other District Teams	<ul style="list-style-type: none"> <li>• Include relevant malaria control activities within plans and budget for, implement and monitor accordingly</li> <li>• Liaise with other sectors to harmonise plans and activities</li> </ul>
	Health Sub-districts	<ul style="list-style-type: none"> <li>• Plan, mobilise &amp; allocate resources for malaria control &amp; prevention within the sub-district</li> <li>• Ensure adequate monitoring and evaluation of malaria control activities within the health sub-district</li> <li>• Support health facilities and communities in planning, implementation and capacity development</li> </ul>
	Health Facilities	<ul style="list-style-type: none"> <li>• Deliver effective malaria control services within health facilities</li> <li>• Support communities and families to manage malaria effectively</li> </ul>
	District-based NGOs	<ul style="list-style-type: none"> <li>• Advise on and support district priorities and plans for malaria control</li> <li>• Plan and implement activities within the district framework</li> <li>• Advocate for adequate resources</li> </ul>
	Private Sector	<ul style="list-style-type: none"> <li>• Providers: ensure quality service delivery within national guidelines</li> <li>• Suppliers: Create effective markets for antimalarial products; ensure responsible coverage of malaria in the media and marketing materials</li> </ul>

<b>Level</b>	<b>Partner</b>	<b>Roles and responsibilities</b>
<u>National</u>	MOH (MCP and others)	<ul style="list-style-type: none"> <li>• Ensure implementation of National Health Policy &amp; Minimum Health Care Package.</li> <li>• Review and update malaria policies as necessary</li> <li>• Build and maintain partnerships</li> <li>• Liaise with other sectors to harmonise plans and activities</li> <li>• Ensure harmonization of malaria control with other programmes, especially IMCI and Reproductive Health</li> <li>• Ensure availability of quality anti-malarial drugs and other supplies in the country</li> <li>• Mobilise and allocate resources</li> <li>• Set standards &amp; ensure adherence to them.</li> <li>• Produce guidelines, provide technical guidance and support capacity development in districts and among other partners</li> <li>• Monitor and evaluate agreed actions</li> </ul>
	Other line ministries	<ul style="list-style-type: none"> <li>• Review and put forward appropriate amendments to legislation and regulations</li> <li>• Plan, mobilise &amp; allocate resources for malaria control &amp; prevention activities within the sector</li> <li>• Liaise with other sectors to harmonise plans and activities</li> </ul>
<u>National</u>	Ministry of Finance	<ul style="list-style-type: none"> <li>• Allocate and monitor use of resources</li> <li>• Monitor impact on poverty</li> <li>• Review and put forward appropriate amendments to legislation and regulations e.g. tax exemption where appropriate</li> </ul>
	Development Partners	<ul style="list-style-type: none"> <li>• Advise on and support national priorities and plans for malaria control</li> <li>• Provide funding within the national framework</li> <li>• Advocate for malaria and adequate resources</li> </ul>
	National/international NGOs	<ul style="list-style-type: none"> <li>• Advise on and support national priorities and plans for malaria control</li> <li>• Plan and implement activities within the national framework</li> <li>• Advocate for malaria and adequate resources</li> </ul>
	Private Sector	<ul style="list-style-type: none"> <li>• Providers: ensure quality service delivery within national guidelines</li> <li>• Suppliers: Create effective markets for antimalarial products; ensure responsible coverage of malaria in the media and marketing materials</li> <li>• Both: lobby for appropriate legislation in collaboration with public sector partners</li> </ul>

**BUDGET ESTIMATES STRATIFIED BY STRATEGIES BY YEAR IN US \$**

**A: MAIN STRATEGIES**

No.	Description Of Activity	Time Schedule				Total
		2001/2	2002/3	2003/4	2004/5	
<b>1 Case Management</b>						
1.1	Ensuring adequate supply of efficacious drugs and ancillary materials	12,030,000	12,330,750	12,639,019	12,954,994	499,54,763
1.2	Ensuring adequate supply of drugs for IPT	300,000	307,500	315,200	323,000	1,245,700
1.2	Improving quality of malaria case management at community and health facility level	333,333	366,667	403,333	443,667	2,784,600
1.3	Development and updating training manuals and guidelines	166,667	55,556	201,667	83,333	913,000
		<b>12,830,000</b>	<b>13,060,472</b>	<b>13,559,219</b>	<b>13,804,994</b>	<b>54,898,063</b>
<b>2 Intermittent Presumptive treatment IPT</b>						
2.1	Development and updating training manuals and guidelines	40,000	20,000	20,000	20,000	100,000
2.2	Updating of health workers and other service providers	88,889	97,778	107,556	118,311	412,533
		<b>128,889</b>	<b>117,778</b>	<b>127,556</b>	<b>138,311</b>	<b>512,533</b>
<b>3 Vector Control</b>						
3.1	Development and updating ITN policies, guidelines and standards	50,000	55,000	60,500	66,550	232,050
3.2	Procurement and promotion of ITNs and establishment and maintenance of re-treatment centers (USD)	4,891,361	5,706,588	3,260,907	2,445,680	16,304,536
3.3	Support IRS services	222,222	244,444	268,889	295,778	1,031,333
3.4	Coordination of vector control services	27,778	30,556	33,611	36,972	128,917
		<b>5,191,361</b>	<b>6,036,588</b>	<b>3,623,907</b>	<b>2,844,980</b>	<b>17,696,836</b>
<b>4 Epidemic preparedness and response</b>						
4.1	Development and maintenance of an early warning system	222,222	244,444	268,889	295,778	1,031,333
4.2	Ensure adequate buffer stocks of drugs, insecticides, operational resources and other essential supplies	555,556	611,111	672,222	739,444	2,578,333
4.3	Support to district epidemic response plans	333,333	366,667	403,333	443,667	1,547,000
		<b>1,111,111</b>	<b>1,222,222</b>	<b>1,344,444</b>	<b>1,478,889</b>	<b>5,156,667</b>

B: ENABLING/SUPPORT STRATEGIES

No.	Description Of Activity	Time Schedule				Total
		2001/2	2002/3	2003/4	2004/5	
<b>5 Advocacy, IEC and social Mobilization</b>						
5.1	Advocacy at higher levels for support for malaria control interventions	27,778	30,556	33,611	36,972	128,917
5.2	Creation of awareness about malaria control approaches through a mix of channels	111,111	122,222	134,444	147,889	515,667
5.3	Production and distribution of educational and promotional materials on malaria control interventions	111,111	122,222	134,444	147,889	515,667
5.4	Support district-based community mobilization interventions on malaria	166,667	183,333	201,667	221,833	773,500
5.5	Introduction of malaria control approaches in non-health sectors	27,778	30,556	33,611	36,972	128,917
5.6	Ensure participation in national and international fora for sharing experiences	111,111	122,222	134,444	147,889	515,667
		<b>555,556</b>	<b>611,111</b>	<b>672,222</b>	<b>739,444</b>	<b>2,578,333</b>
<b>6 Human Resource development</b>						
6.1	Updating field officers in current malaria control approaches/techniques	222,222	244,444	268,889	295,778	1,031,334
6.2	Ensure adequate integration of malaria control approaches in pre-service training curricula	111,111	122,222	134,444	147,889	515,667
6.3	Establishment of a centre for training district managers in basic malariology	166,667	183,333	201,667	221,833	773,500
		<b>500,000</b>	<b>550,000</b>	<b>605,000</b>	<b>665,500</b>	<b>2,320,500</b>
<b>7 Systems strengthening</b>						
7.1	Ensure availability of quality microscopes, slides and reagents and their maintenance at all Health Centre III	83,333	91,667	100,833	110,917	386,750
7.2	Ensure adequate linkage of community based surveillance for malaria with the formal health system	44,444	48,889	53,778	59,156	206,267
		<b>127,778</b>	<b>140,556</b>	<b>154,611</b>	<b>170,072</b>	<b>593,017</b>
<b>8 Technical support</b>						
8.1	Technical support from within and outside the country to fill gaps in existing capacities	55,556	61,111	67,222	73,944	257,833

No.	Description Of Activity	Time Schedule				Total
		2001/2	2002/3	2003/4	2004/5	
<b>9 Monitoring and Evaluation including Operational Research</b>						
9.1	Strengthening the malaria monitoring system	55,556	61,111	67,222	73,944	257,833
9.2	Conduct bi-annual drug efficacy and annual insecticide susceptibility studies	44,444	48,889	53,778	59,156	206,267
9.3	Ensure timely monthly district returns via IDS	16,667	18,333	20,167	22,183	77,350
9.4	Establish and maintain surveillance sentinel sites in epidemic prone districts	27,778	30,556	33,611	36,972	128,917
9.5	Review and update the national malaria epidemiological map	44,444	48,889	53,778	59,156	206,267
9.6	Conduct annual community survey and programme review	44,444	48,889	53,778	59,156	206,267
		<b>233,333</b>	<b>256,667</b>	<b>282,333</b>	<b>310,567</b>	<b>1,082,900</b>
<b>10 Management and Supervision</b>						
10.1	Ensuring regular technical support supervision to districts	277,778	550,000	605,000	665,500	2,098,278
10.2	Ensure coordination of various partner activities	55,556	61,111	67,222	73,944	257,833
10.3	Strengthen management capacity	55,556	61,111	67,222	73,944	257,833
10.4	Operational costs and logistic support	277,778	550,000	605,000	665,500	2,098,278
		<b>666,667</b>	<b>1,222,222</b>	<b>1,344,444</b>	<b>1,478,889</b>	<b>4,712,222</b>

### Budget Summary

1	Case management	<b>12,830,000</b>	<b>13,060,472</b>	<b>13,559,219</b>	<b>13,804,994</b>	<b>53,254,685</b>
2	Intermittent Presumptive treatment IPT	<b>128,889</b>	<b>117,778</b>	<b>127,556</b>	<b>138,311</b>	<b>512,534</b>
3	Vector Control	<b>5,191,361</b>	<b>6,036,588</b>	<b>3,623,907</b>	<b>2,844,980</b>	<b>17,696,836</b>
4	Epidemic preparedness and response	<b>1,111,111</b>	<b>1,222,222</b>	<b>1,344,444</b>	<b>1,478,889</b>	<b>5,156,666</b>
5	Advocacy, IEC and social Mobilization	<b>555,556</b>	<b>611,111</b>	<b>672,222</b>	<b>739,444</b>	<b>2,578,333</b>
6	Human Resource development	<b>500,000</b>	<b>550,000</b>	<b>605,000</b>	<b>665,500</b>	<b>2,320,500</b>
7	Systems strengthening	<b>127,778</b>	<b>140,556</b>	<b>154,611</b>	<b>170,072</b>	<b>593,017</b>
8	Technical support	55,556	61,111	67,222	73,944	257,833
9	Monitoring and Evaluation including Operational Research	<b>233,333</b>	<b>256,667</b>	<b>282,333</b>	<b>310,567</b>	<b>1,082,900</b>
10	Management and Supervision	<b>666,667</b>	<b>1,222,222</b>	<b>1,344,444</b>	<b>1,478,889</b>	<b>4,712,222</b>
	<b>Grand total</b>	<b>21,400,251</b>	<b>23,278,727</b>	<b>21,780,958</b>	<b>21,705,590</b>	<b>88,165,526</b>

Annual inflation rate of 10% was applied to the budget of the preceding year except in 1.3 and 9.5