



**REPUBLIC OF MOZAMBIQUE**  
MINISTRY OF HEALTH

NATIONAL DIRECTORATE OF HEALTH  
EPIDEMIOLOGY AND EPIDEMICS DEPARTMENT  
NATIONAL MALARIA CONTROL PROGRAMME

**STRATEGIC PLAN**  
FOR  
**MALARIA CONTROL**  
IN MOZAMBIQUE

**July 2006 - 2009**

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## **EXECUTIVE SUMMARY**

### ***Introduction***

In 1999, a joint international consultancy mission carried out a brief malaria situational analysis, which was followed by a written analysis by the Ministry of Health (MISAU). Moreover, situational analyses were undertaken in 2000 in the districts of Moatize, Massinga, Quelimane, Angoche, Mocuba and Manhiça. The outcomes from those analyses formed the basis for the development of the Mozambican Strategic Plan for the Roll Back Malaria initiative. The above-mentioned plan expires this year and will be replaced by this strategic document, which was developed by reviewing and updating the 2003-2006 Strategic Plan.

### ***Malaria transmission***

Malaria is endemic throughout Mozambique in areas where climate favours its transmission throughout the year, with transmission peaking after the rainy season (from December to April). *Plasmodium falciparum* is the most prevalent parasite, accounting for approximately 90% of all malaria infections, while *P. malariae* and *P. ovale* are respectively responsible for 9.1 and 0.9% of all infections.

### ***Malaria burden***

In Mozambique, malaria is the major cause of health problems and is responsible for 40% of all outpatient cases. Up to 60% of inpatients in paediatrics wards are admitted due to severe malaria. Malaria is also the major cause of hospital mortality in Mozambique, i.e. it accounts for approximately 30% of all deaths. Estimated prevalence in the age group from two to nine years old varies from 40 to 80%, with 90% of children under five years old infected by malaria parasites in some areas.

### ***Analysis and response to malaria burden***

Malaria control activities in Mozambique date back to the 1950s when the global malaria eradication programme was initiated. The National Malaria Control Programme (NMCP), with its current remit, was established in 1982.

### ***Objective***

To reduce morbidity and mortality due to malaria in the population in general, and in pregnant women and children under five years old and other vulnerable groups, in particular.

### ***Targets and baselines***

The global impact goal is to reduce the malaria burden by half (malaria parasite prevalence and case fatality rate) by 2015 as compared to levels found in 2001 (40% - 80%), and thus attain the Millennium Goal related to malaria control (refer to the policy declaration document).

### ***Monitoring and evaluation***

Key indicators will be monitored annually as indicated in annual plans of action and reports. A mid-term review will be carried out in end of 2008 and the overall evaluation is expected to be undertaken in 2010.

***Strategies***

- Diagnosis, Case Management and Drug Supply
- Integrated Vector Management and Personal Protection
- Health Promotion and Community Mobilisation
- Emergency Response
- Programme Management and Systems Development
- Monitoring and Evaluation (Surveillance, Information and Research)

## **Acronyms**

ACT - Artemisinin-based Combination Treatment  
AIDS - Acquired Immuno – Deficiency Syndrome  
ANC - Ante Natal Care  
AQ - Amodiaquine  
AS - Artesunate  
CHA – Community Health Agent  
CISM - Manhiça Research Centre  
CMAM - Central Medical Stores and Supplies  
CNLM - National Malaria Control Commission  
CQ - Chloroquine  
DDS - District Health Directorate  
DDT - Dichlorodiphenyltrichloroethane  
DFID – (British) Department for International Development  
DPS - Provincial Health Directorate  
EPI - Expanded Programme of Immunisation  
HF - Health Facility  
HIS - Health Information System  
HIV - Human Immunodeficiency Virus  
IMCI - Integrated Management of Childhood Illness  
INGC - National Institute for Management of Natural Disasters  
INS - National Institute of Health  
IPT - Intermittent Preventive Treatment  
IPTI - Intermittent Preventive Treatment in Infants  
IRS - Indoor Residual Spraying  
ITN – Insecticide - Treated Nets  
IVM - Integrated Vector Management  
KAP – Knowledge, Attitudes and Practices  
LLIN – Long- Lasting Insecticidal Nets  
LSDI - Libombo Spatial Development Initiative  
MC - Malaria Consortium  
MISAU – Ministry Health  
NGO – Non- Governmental Organization  
NHS - National Health System  
NMCP - National Malaria Control Programme  
PARPA - Poverty Reduction Paper  
PSI - Population Services International  
RBM - Roll Back Malaria  
RDT - Rapid Diagnostic Test  
RESP - Health Promotion Unit (MISAU)  
SADC - Southern Africa Development Community  
SAIC - Spanish Agency for International Cooperation  
SP – Sulfadoxine- Pyrimethamine  
STI - Sexually Transmitted Infection  
SWAP - Sector Wide Approach  
SWOT – Strengths, Weaknesses, Opportunities and Threats  
TB - Tuberculosis  
UNICEF - United Nations Children’s Fund  
USAID - United States Agency for International Development  
WHO - World Health Organization

## **1. Introduction**

This strategic document will be effective until the end of 2006, when the finalization of the evaluation of the programme for development of a new strategic plan for malaria control in Mozambique is expected to be completed.

In 1999, a rapid malaria situation analysis was carried out by a joint international consultancy mission and was followed by a written analysis prepared by the MISAU (MISAU). Also, in 2000, situational analyses were carried out in districts of Moatize, Massinga, Quelimane, Angoche, Mocuba and Manhica. The results from those analyses were the basis for the development of the Mozambican Strategic Plan for the RBM Initiative, which expires this year and will be replaced by this strategic document.

This document constitutes a review and update of the 2003-2006 Strategic Plan. It fits with both the Poverty Reduction Paper (PARPA) and MISAU's Strategic Plan for 2001-2005(2010). The main purpose of this plan is to provide the National Malaria Control Programme (NMCP) with a defined strategy with clear aims and objectives, and monitoring and evaluation indicators, thereby facilitating effective implementation of the Malaria Control Programme in Mozambique.

### **1.1. Malaria transmission**

Malaria is endemic throughout the country in areas where the climate favours year-long transmission, with peak transmission observed after the rainy season (from December to April). Transmission intensity varies from year to year and region to region, depending on rainfall, altitude and weather. Some dry areas in the country are epidemic-prone. *Plasmodium falciparum* is the most common parasite, and is responsible for approximately 90% of all malaria infections, while *P. malariae* and *P. ovale* are respectively responsible for 9.1 and 0.9% of malaria infections.

### **1.2. Malaria burden**

According to the situational analysis carried out in Mozambique in 2000, malaria is the major cause of health problems, being responsible for 40% of all outpatients. Up to 60% of paediatric inpatients are due to severe malaria. Malaria is also the major cause of mortality in hospitals in Mozambique, i.e. approximately 30% of all hospital deaths. The estimated prevalence rates in the 2 to 9 year age group varies from 40 to 80%, with 90% of children under five infected by malaria parasites in some areas.

Access to health care in Mozambique is very low and an estimated 50% of the population lives further than 20 kilometres from the nearest health facility (HF), a situation which shows a large part of the population lacks access to health services for. Malaria is also a major problem affecting pregnant women in rural areas. Approximately 20% of pregnant women are infected by the parasite, first

time pregnancies are the most affected, with a 31% prevalence rate. Anaemia, very often associated with malaria, is a serious problem and 68% of pregnant women have a haematocrit below 33%.

Active investigation of clinical malaria cases suggests the risk of clinical malaria is higher in the one to three year age group, when children can have an average of more than two malaria episodes per year.

Resistance of *P. falciparum* to antimalarial drugs, especially to first-line non-complicated malaria treatment with chloroquine, ranges from 15 to 40%, depending on the location. Resistance to drugs is a challenging constraint to effective case management, particularly at peripheral levels, where clinical and laboratory diagnosis capacity are weak.

The precise scale of economic loss due to malaria in Mozambique is not well known. However, it is clear malaria contributes to high economic loss, high school absenteeism rates and low productivity in agriculture – the main source of income and subsistence for the majority of the rural population.

### **1.3. Analysis and response to the malaria burden**

#### **1.3.1. Background**

Malaria control activities in Mozambique date back to the 1950s, when the global malaria eradication programme was initiated. However, the NMCP, with its current remit, was only established in 1982. In 1991, the NMCP formally adopted three main strategies, namely: Early Diagnosis of Malaria (clinical and laboratory) and its appropriate treatment, Vector Control and Health Promotion.

A joint international consultancy mission undertaken in 1999 concluded these strategies had not been effective towards malaria control in Mozambique, for the following reasons:

- The National Health System (NHS) lacks the capacity to reach the majority of the rural population;
- Health infrastructures were insufficient after sixteen years of civil war and destruction, and linkages between health services and the community were weak;
- Chloroquine resistance and the limited availability of drugs at community level;
- Residual spraying campaigns against mosquitoes were concentrated in urban areas;
- Health promotion, information and communication often failed to reach the target population, and has been ineffective;
- The population had limited capacity to recognise important malaria signs and symptoms, and certain cultural practices prevent people from seeking health care.

In response to this situation, MISAU adopted a new approach for its malaria control programme, in line with the Roll Back Malaria initiative for the African region. The strategy aims to promote civil society involvement in health, focussing on the capacity at family level to prevent, recognize and, when necessary, manage malaria appropriately or go to a health facility. This strategy



targets children under five and pregnant women. Malaria is also regarded as a priority, both in the PARPA and the Health Sector Strategic Plan.

## **2. Programme objective, purpose and targets**

### **2.1. Objective**

To reduce morbidity and mortality due to malaria in the population, in particular in among pregnant women and children under five, including poor population groups.

### **2.2. Purpose**

The purpose of the National Malaria Control Programme is to coordinate and support the delivery of effective interventions for malaria control that will prevent and reduce morbidity and mortality due to malaria.

### **2.3. Targets and baselines**

(Extracted from the Health Sector Policy Statement)

#### **• Global impact goal:**

- *Reduce the malaria burden by half (malaria parasite prevalence and case fatality rate), by 2015 as compared to levels found in 2001 (40% - 80%), thereby achieving the Millennium Development Goal for malaria control (refer to the Health Sector Policy Statement). In summary:*

#### **• Specific impact targets:**

1. *Reduction of severe malaria incidence rate in children under five, from 55 per 10,000 found in 2000 to 41 per 10,000 in 2010 and 22.5 per 10,000 in 2015, and attain the Millennium Development Goal,*
2. *Reduction of severe and complicated malaria mortality rate in children under five, from 2 per 10,000 in 2001 to 1.5 per 10,000 in 2010 and 1 per 10,000 in 2015, thereby achieving the Millennium Development Goal,*
3. *Reduction of the proportionate mortality rate due to malaria in children under five, from 30% found in 2001 to 22.5% in 2010, and 15% in 2015,*
4. *Reduction of malaria parasite prevalence rates in pregnant women from 20% in 2001 to 15% in 2010, and 10% in 2015, thereby achieving the Millennium Development Goal,*
5. *Reduction of case fatality and mortality rates due to malaria in pregnant women,*
6. *Reduction of malaria parasite prevalence rates in the two to nine year age group from 60% in 2001 to 45% in 2010, and 30% in 2015, thereby achieving the Millennium Development Goal,*
7. *Reduction of the case fatality rate due to malaria from 7% in 2001 to 5% by 2010, and 3.5 % in 2015, thereby achieving the Millennium Development Goal,*
8. *Improvement in malaria diagnosis quality from the current 25-30% to 60% in 2010, and 80% in 2015.*

• **Specific service coverage targets**

1. At least 60% of those at risk of malaria infection should benefit from the most appropriate combination of personal and collective protection measures, including indoor residual spraying (IRS), insecticide-treated mosquito nets (ITN) and other accessible and low-cost interventions by 2010;
2. At least 60% of all pregnant women have access to intermittent preventive treatment (IPT);
3. At least 60% of malaria cases have rapid access to correct low-cost treatment within the first twenty-four hours following onset of symptoms;
4. Improve malaria diagnosis quality from the current 25-30%, to 60% in 2010 and 80% in 2015.

**2.4. Monitoring and evaluation**

The Strategic Plan defined targets and indicators to monitor implementation of activities and measure the impact of malaria control interventions. The key indicators will be monitored annually, as defined in annual plans of action and reports. A mid-term review will be undertaken at the end of 2008, and the global evaluation is expected to be carried out in 2010.

### **3. Individual strategies**

- Diagnosis, Case Management and Drug Supply
- Integrated Vector Management and Personal Protection
- Health Promotion and Community Mobilization
- Emergency Response
- Programme Management and Systems Development
- Monitoring and Evaluation (Surveillance, Information and Research)

**3.1. Diagnosis, case management and drug supply**

**3.1.1. Key components**

- Improve malaria diagnosis in health facilities,
- Ensure the supply of effective drugs to health facilities,
- Improve the quality of treatment-based health care, with focus on Integrated Management of Childhood Illness (IMCI) and ante natal care for women (IPT),
- Provide IPT for malaria in pregnancy with *sulfadoxine-pyrimethamine*,
- Encourage behaviour change so treatment from a HF is sought on the merest suspicion of malaria symptoms,
- Promote community-based malaria prevention and treatment in remote and isolated communities, through recognition of symptoms, and encouraging immediate seeking of treatment within the community (for non-complicated malaria) and from hospitals (for severe and complicated malaria).

### **3.1.2. Background**

Appropriate diagnosis and management of malaria cases are cornerstones to the Malaria Control Programme, as they allow significant reduction of morbidity (duration and degree of complication) and mortality due to malaria. In areas of stable malaria transmission, children under five and unprotected travellers, are typically the group at high risk of serious infection and death due to malaria. However, effective management of non-complicated malaria cases may significantly reduce incidence of severe malaria. Appropriate hospital care and appropriate management of malaria cases will lead to a reduction of mortality due to malaria.

In pregnant women, malaria may cause anaemia, spontaneous abortion, still-born and/or low-weight newborns. In areas of stable malaria transmission, use of IPT with *Sulfadoxine-Pyrimethamine* in pregnant women is recognized as a useful tool in the prevention of malaria and its complications for this population group.

In rural areas in the country, access to formal health services is extremely limited and community-based treatment is an appropriate strategic alternative.

### **3.1.3. Situation analysis**

On approval of the change to the Mozambican malaria treatment policy in 2002<sup>1</sup>, the complex process for its implementation was initiated.

At that time, the malaria treatment policy was defined as follows:

- 1st line: Amodiaquine (AQ) + Sulfadoxine-Pyrimethamine (SP)
- 2nd line: Artemether + Lumefantrine
- 3rd line: Quinine

It should be noted that despite the proven inefficacy of chloroquine (CQ), the policy advised its use for malaria treatment at community level. Therefore, this antimalarial drug (CQ) remains part of kit C used at Community Health Posts.

Given the debate around AQ, namely the fact that drug had been banned by WHO due to alleged severe side effects, together with its similarities to CQ and potential cross-resistance between the two drugs meant by 2002 senior MISAU management was already considering the new first-line regimen as temporary until the country was in position to adopt a first-line treatment based on a combination containing artemisinin (ACT) derivatives.

In this context, towards the end of 2004, the then Minister of Health authorised another change to the first-line malaria treatment, with artesunate (AS) replacing AQ. The first-line therapeutic combination then became AS+SP with the second and third lines remaining unchanged. It should be noted the introduction of this

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<sup>1</sup> MISAU: Resolution: Malaria Treatment Policy Review in Mozambique. Government Gazette, I Series, 23 October 2002.

new first-line treatment had been progressively and successfully introduced in districts of Maputo province by the Libombo Spatial Development Initiative (LSDI).

Following approval for the introduction of the IPT strategy in late 2004, there was a long preparatory period. It was only in the first quarter of 2006 that the necessary tools for introducing the strategy in the country were finalised. This strategy is officially being implemented nationwide since May 2006, though the levels of implementation vary from province to province.

At this stage, malaria diagnostic capacity is limited. This is due both to a limited laboratory network and more particularly to a shortage of laboratory staff (technicians and lab assistants) to respond to the demand of those who use these services.

More than half of Mozambicans are estimated to live more than 20 kilometres from the nearest health facility, meaning the majority of rural populations have extremely limited access to formal health care. In this context, it is vital a strategy for community management of fever be developed and implemented in Mozambique. Another problem restricting maximum use of the health network by those with malaria is the fact that seeking treatment for children with fever relies upon diagnosis in the home and how a child responds to the household treatment tried. Churches, preachers and traditional healers have been the main providers of health care for fever at community level.

**3.1.4. SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) in relation to Diagnosis and Treatment in Mozambique**

<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
Policy and treatment guidelines available	Budgetary constraints for purchasing new antimalarial drugs	Strong support from government and cooperation partners	Retail combinations of antimalarial drugs may hinder implementation of combined therapies and facilitate spread of resistance to antimalarial drugs in use
	Weak capacity to operationalise new policies at DPS and DDS levels	Strong government support for malaria control Free antimalarial drugs Existence of Provincial Coordinators for Malaria, TB/Leprosy, STI/HIV/AIDS	Vertical programmes
	Poor stock management at all levels	Existence of vertical organizational structure in the pharmaceutical area	
Expansion of laboratory capacity	Insufficient laboratory assistants and technicians	Introduction of rapid diagnosis tests	Abandonment of microscopy

## Annex M3

Regular training of health workers in IMCI and malaria case management	Health workers overloaded Lack of information on safety of new therapeutic combinations in children and pregnant women		
Introduction of IPT	Weak capacity to operationalise new policies at DPS and DDS levels	High coverage of ANC Availability of organisations interested in collaborating Integration of IPT into reproductive health services	Risk of increased levels SP resistance
Development of a new strategy for malaria prevention in infants (IPTi) that may be implemented through the EPI	Strategy being developed	Availability of EPI and organisations interested in collaborating	Risk of increase of levels of resistance to SP
Community treatment of malaria	Lack of consensus over drug use in the community	Strategy for community involvement at an advanced stage of development, Availability of community IMCI	Sustainability of the strategy
Regular monitoring of therapeutic efficacy	Limited treatment options if resistance occurs	Correct use of therapeutic combinations may delay resistance	Incorrect intake of drugs by patients Self-medication

### 3.1.5. Operational approaches

Whilst this strategic document is in effect, priority interventions are as follows:

- Improve dialogue between the NMCP, the Drug and Medical Supplies Centre (CMAM) and partners on budgetary planning for antimalarial drugs and diagnostic methods;
- Prioritise importation of fixed combinations (co-formulated) or co-packaged antimalarial drugs, in line with WHO recommendations,
- Ensure workplans for the Provincial Coordinator for Malaria, HIV and TB include rapid operationalisation of guidelines for malaria diagnosis and case management, including IPT,
- Integrate malaria control interventions into established services and structures,
- Collaborate with the Pharmaceutical Department to improve rational management of antimalarial drugs and means of diagnosis,
- Introduce and expand malaria rapid diagnostic tests (RDT) and establish criteria for their use,
- Train relevant health workers in each HF in use of RDT,

- Undertake regular case management monitoring and supervision
- Maintain regular monitoring of antimalarial drug therapeutic efficacy
- Update guidelines related to antimalarial drugs within the NHS, in the private sector and the community,
- Follow new developments malaria diagnosis and treatment, including the possibility of introducing IPT for children (IPTc) through the EPI, as well as the implementation of community management of fever,
- Update regulations for use of antimalarial drugs within the NHS, in both the private sector and the community,
- Raise awareness on use of chemoprophylaxis for travellers with no protection, by increasing partnerships with other sectors, in particular, tourist sector.

### 3.1.6. Costs

ITEM	2006	2007	2008	Currency: USD	
				2009	TOTAL
RDTs	0	3,150,000	4,410,000	5,040,000	12,600,000
Drugs	0	9,769,953	9,769,953	9,769,953	29,309,859
Continuous Training	42,000	210,000	210,000	210,000	672,000
Supervision	52,500	52,500	52,500	52,500	210,000
<b>Total</b>	<b>94,500</b>	<b>13,182,453</b>	<b>14,442,453</b>	<b>15,072,453</b>	<b>42,791,859</b>

### 3.1.7. Indicators, baseline and targets

INDICATOR	Baseline 2001	Target 2006	Target 2007	Target 2008	Target 2009
Percentage of population with fever seeking treatment from a HF within the first twenty four hours following onset of symptoms	17%-20%	25%	35%	50%	60%
Percentage of children under five with non-complicated malaria treated according to malaria treatment guidelines in place in the HF in the country	40%	60%	80%	95%	100%
Percentage of children under five with severe malaria treated according to malaria treatment guidelines in place in HF in the country	28%	≥95%	≥95%	≥95%	≥95%
Percentage of pregnant women receiving at least one dose of IPT <u>among those who attend ANC</u>	0%	50%	60%	70%	≥80%
Percentage of HF with first-line malaria treatment	100%	≥95%	≥95%	≥95%	≥95%
Percentage of HF with no stock outs of first-line antimalarial drugs for more than ONE week within the last three months	20%	≥95%	≥95%	≥95%	≥95%
Percentage of HF with malaria diagnosis means	8%	20%	80%	90%	95%
Number of RDT distributed	0	500,000	5,000,000	7,000,000	8,000,000
Number of drug efficacy control posts that	5	6	NA	6	NA

monitor drug efficacy regularly (every two years)					
Percentage of districts with an active pharmaco-vigilance system	8.9%	≥10%	≥20%	≥50%	≥80%
Percentage of non-urban districts with at least one Community Health Agent (CHA) or other type of community activist trained in fever management and malaria diagnosis, according to the new treatment policy for isolated communities	1%	1%	10%	30%	40%
Percentage of CHA or other type of community activist without stock outs of antimalarial drugs used for community treatment of malaria for more than one week within the last three months	NA	0%	10%	30%	40%

### **3.2. Integrated Vector Management and Personal Protection**

#### **3.2.1. Key components**

Integrated vector management (IVM) comprises a variety of vector control interventions based on local factors that determine disease transmission. Among them, the following can be highlighted:

- Larvae control through environmental management and physical, chemical and biological methods;
- IRS;
- Use of ITN.

#### **3.2.2. Background**

The main advantage of IVM lies in its flexibility and the possibility of combining different complementary or supplementary interventions, thereby minimizing the risk of failure from use of a single intervention.

In-house residual spraying is one of the most effective methods in malaria vector control and is recommended as the best strategy for emergency situations. The purpose of IRS is to eliminate adult mosquitoes, and its continuous use may lead to reduction in malaria transmission levels.

Different studies carried out in Africa on the efficacy of ITN use show them to be an effective preventive method that may reduce child mortality by approximately 25%. Detailed analysis of studies undertaken in Africa has proved ITN reduce clinical malaria episodes by 48% and improve anaemia status by 0.5 g/dl, on average (Lengeler, 1988).

Larvae control is potentially effective when target breeding sites are well defined and limited in number, particularly in urban centres.

### **3.2.3. Situation analysis**

Mozambique has already come a long way in using IRS as one of its vector control methods. As a strategy, IRS is generally considered appropriate in places with high-density populations living in poor housing (high density - low income), such as suburbs and peri-urban areas in cities and towns. In Mozambique, targetted areas have been mainly city suburbs and some towns, as well as the economically strategic areas which constitute less than 20% of the country. However, the success achieved in average parasite reduction in children in the nine to fifteen year age group in some districts in Maputo province, by LSDI, has encouraged the MISAU to initiate a pilot experience in scaling up IRS to rural areas in Zambezia province, like LSDI has done. Thus, a comprehensive IRS programme began in 2005/2006 in Quelimane city and in Nicoadala and Namacurra districts; in 2006/2007 IRS is expected to expand to reach Mocuba, Milange and Morrumbala districts. In addition, under the Global Fund for TB, HIV/AIDS and Malaria (Round 5), LSDI will progressively scale up IRS into Gaza province this year, primarily in the districts of Chókwè, Guijá and Massingir, with coverage of the whole province expected by 2009. Other funding sources should allow a sustainable increase of IRS coverage in Mozambique.

At this stage, given the logistical requirements and high costs of IRS if implemented nationally in a comprehensive and sustainable manner, ITN are proving a more relevant vector control method in rural and isolated areas.

Until 1999, ITN use in Mozambique was almost non existent. In 2000, as part of the efforts to assist families affected by severe floods, MISAU and UNICEF distributed more than 200,000 mosquito nets nationally, spearheading large scale net distribution projects, followed later by projects of varying sizes. Current estimates suggest that since 1999 approximately only 1,650,000 ITN have been distributed across the country. This estimate includes the 400,000 Long-Lasting Insecticidal Nets (LLIN), funded by the Canadian International Development Agency and distributed in Sofala and Manica provinces in December 2005, in collaboration with the Mozambican Red Cross. Gaza, Inhambane, Tete, Zambézia and Cabo Delgado provinces currently have projects that are well-established or being established to distribute mosquito nets to pregnant women through ANC and children. In many provinces, this distribution is being carried out in collaboration with UNICEF. More recently, the Spanish Agency for International Cooperation (SAIC) funded UNICEF to purchase approximately 140,000 LLIN for free distribution to pregnant women and children under five in Niassa province. Lastly, the Department for International Development (DFID) is financing an approximately GBP 8 million project to establish a sustainable ITN market in Mozambique, being implemented by the NGO, Malaria Consortium (MC). This project will also distribute LLIN to pregnant women through health facilities. This project was launched in Inhambane province in 2005 and this year will expand to Nampula and Cabo Delgado provinces. Many other NGOs (in particular PSI), have been selling mosquito nets in communities using "social marketing" and other commercial mechanisms.



In Mozambique there are efforts to support the private sector for ITN and LLIN sales in order to assist in the development of a sustainable market for these products and help develop a net culture through promotional campaigns.

To date there has been no comprehensive and systematic environmental management in the country, an area that represents a serious challenge due to the ubiquitous nature of mosquito breeding sites in Mozambique. In such conditions, only comprehensive, effective and sustainable community and multi-sectoral involvement may have some impact in reducing mosquito breeding sites. Besides MISAU, local authorities and the Ministries of Agriculture, the Environment, Public Works and Education are among the key sectors involved in this area.

#### 3.2.4. SWOT analysis in relation to vector control in Mozambique

<b>Strengths</b>	<b>Weaknesses</b>	<b>Opportunities</b>	<b>Threats</b>
Re-introduction of DDT	Management and control of insecticide stocks in peripheral warehouses	Strong government support	Insecticide theft
Free IRS	IRS sustainability	Strong support from government and cooperation partners	Misinformation on DDT, Weak collaboration from some beneficiaries
Decentralization of spraying activities to local levels	Weak technical and logistical capacity in target provinces and districts	Existence of Provincial Coordinators for Malaria, TB/Leprosy, STI/HIV/AIDS	Vertical nature of the malaria control programme
Past experience with ITN projects (MISAU, NGOs and private sector)	Limited availability MISAU's weak purchase capacity Low distribution capacity No culture of using ITN No national ITN policy	Strong support from government and cooperation partners  Use of IEC to foster ITN culture  Existence of a draft national ITN policy	ITN theft  Potential development mosquito resistance to insecticides
Reduction of taxes and tariffs on insecticides and ITN	Slow pace of African government towards Abuja Declaration targets	Strong government support in malaria control	Both ITN and insecticides are used for commercial gain by other organisations

#### 3.2.5. Operational approaches

Whilst this strategic document is in effect, priority interventions are as follows:

- Significant increase in national IRS coverage in urban and peri-urban areas;
- Use of DDT for IRS in line with the Stockholm Convention;
- Use of other WHO-approved insecticides for IRS wherever DDT is not recommended;

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- Continue to seek support in order to ensure a sustained increase of IRS coverage;
- Advocate in the community in order to increase community-health authority collaboration in the areas covered by IRS;
- Advocate in the community and with local leaders in order to report theft of insecticides used by the MISAU for IRS;
- Review, reorganize and strengthen human and logistical capacity to carry out quality IRS activities (including insecticide stock management and control), at provincial and district level;
- Continue with annual training/refresher courses on IRS and ITN;
- Intensify fund-raising to ensure large scale, free distribution of ITN to rural populations in the country, either through ANC or community campaigns for children under five. Priority will be given to areas with no IRS activities (in the first year priority will be for pregnant women and children under five in areas without IRS; in the second year, priority will be given to pregnant women and the general population in the same areas; and in the third year priority will be extended to include children under five in areas with IRS activities and all pregnant women);
- Strengthen partnerships with NGOs and the private sector to ensure increased ITN numbers in the country;
- Advocate for removal of taxes and tariffs on ITN in order to make them more accessible;
- Strengthen control on theft of ITN;
- Finalize the national ITN policy;
- Stimulate demand for ITN and encourage their appropriate use;
- Promote awareness on the need to treat nets and increase demand for treatment products, through education for behaviour change;
- Promote use of LLIN in isolated areas;
- Promote use of other personal protection measures, such as mosquito repellents, spirals and traditional repellents (duly approved);
- Strengthen partnerships for vector control with other Ministries (Planning and Finance, Agriculture, the Environment, Public Works, Transports and Communication, Home Affairs, Defence, etc.), City Councils, NGOs, the private sector, civil society, media, bilateral and multilateral cooperation partners;
- Map the main mosquito breeding sites in major population areas and classify their potential receptivity to larvae control interventions (environmental management and larvicide use);
- Assess the impact of IRS and ITN on malaria transmission, morbidity and mortality;
- Carry out annual bio-assays and monitor vector susceptibility to insecticides used in IRS and ITN every two years;
- Undertake studies to determine vector species and their behaviour;
- Maintain monthly surveillance of anopheles density in areas covered by IRS;

- Maintain control of the insecticides market through registry of insecticide products;

### 3.2.6. Costs

ITEM	Moeda: USD				TOTAL
	2006	2007	2008	2009	
Insecticides		11,038,353	16,148,996	16,918,519	44,105,868
Containers		139,125	10,500	5,250	154,875
Purchase of ITN		17,640,000	22,680,000	13,860,000	54,180,000
ITN distribution and promotion		5,880,000	7,560,000	4,620,000	18,060,000
Spraying equipment		1,608,794	1,319,260	1,247,918	4,175,972
Transport		3,919,100	877,580	785,215	5,581,895
Other consumables		763,371	794,655	813,131	2,371,157
Supervisors		41,617	43,058	43,761	128,436
Training of spray operators/supervisors		141,753	149,596	155,256	446,605
Social mobilisation		79,464	83,160	85,008	247,632
IRS fees		1,047,234	1,110,435	1,160,498	3,318,167
<b>Total</b>		<b>42,298,811</b>	<b>50,777,241</b>	<b>39,694,555</b>	<b>132,770,607</b>

### 3.2.7. Indicators, baseline and targets

INDICATOR	Baseline 2001	Target 2006	Target 2007	Target 2008	Target 2009
Number of spray operators trained	980	1,806	2,800	3,080	3,080
Number of houses sprayed	754,000	1,600,000	2,500,000	2,750,000	2,750,000
Percentage of houses sprayed in target areas	60%	80%	>80%	90%	90%
Percentage of structures sprayed in target areas	60%	80%	>80%	90%	90%
Population protected through IRS in target areas	3,000,000	4,800,000	8,000,000	9,000,000	9,000,000
Percentage of population protected by IRS nationally	13%	25%	40%	45%	45%
Monitoring of mosquito susceptibility to insecticides every two years	10	6	NA	6	NA
Number of provinces undertaking annual monitoring of spraying quality (bio-assays)	3	NA	11	11	11
Number of ITN/ LLIN distributed		800,000	2,800,000	3,600,000	2,200,000
Number of rural districts with ITN/LLITN distribution programmes through health facilities or community campaigns for pregnant women and children under five	8	70	100	100	145
Percentage of pregnant women and children under five with at least one ITN in each district without spraying activities	11%	41%	>95%	>95%	>95%
Percentage of children under five sleeping protected by an ITN in districts without spraying activities	11%	30%	80%	90%	95%
Percentage of pregnant women sleeping protected by an ITN in districts without spraying activities	1%	40%	90%	90%	95%

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Percentage of population protected with ITN in the country (based on the number of nets distributed in the last three years)	ND	28%	68%	68%	≥95%
Number of places with structured programmes for control of mosquito breeding sites	3	4	11	11	11

NA =Not available

### **3.3. Health promotion and community mobilization**

#### **3.3.1. Key components**

The strategy aims to increase malaria mobilisation activities through information, education and communication (IEC) activities, involving participatory approaches to raise awareness and influence behaviour change, as well as to actively mobilize communities to become partners involved in malaria control. The strategy includes:

- Sensitisation of all the different sectors of Mozambican society to recognise malaria as a public health problem;
- Innovative and participatory education initiatives to raise individual, family and community awareness of malaria, and promote positive behaviour change regarding personal protection and seeking of treatment;
- Strengthening of community-based activities and exploration of entry points for communities to use when carrying out malaria prevention and treatment activities.

#### **3.3.2. Background**

In order to maintain malaria as a public health priority, it is necessary to sensitize all sectors of Mozambican society. Active community participation may increase the efficacy of malaria control efforts and facilitate the sustainability of interventions.

#### **3.3.3. Situational analysis**

Many surveys have showed that awareness levels around malaria transmission and preventive methods are very low, particularly among rural populations.

In response, MISAU has been developing a community involvement strategy for disease control, aimed at accommodating all initiatives involving the community, as well as collaborating with NGOs, community-based organizations and traditional leaders. Communities are fundamental partners in the promotion of better health status for themselves. It should be mentioned the Government approved a decree (2000/15) formalising traditional leaders as the most peripheral government authority.

Nationally, two days to commemorate malaria are celebrated. However, considerable sensitization efforts remain necessary in order for malaria control to be considered a national priority.

### 3.3.4. SWOT analysis in relation to health promotion and community mobilization

Strengths	Weaknesses	Opportunities	Threats
Availability of a MISAU Health Education unit	IEC materials not adapted to the local context	Strong interest being shown by different civil society groups, NGOs, donors, private sector and other government sectors	Conflicting messages due to weak coordination
Africa and SADC Malaria Days	No planning committee for malaria day celebrations	Interest shown by different civil society groups, NGOs, donors, the private sector and other government Ministries	Failure of some NGOs to implement activities agreed on and funded by MISAU and its partners
Community involvement strategy and NMCP communication strategic plan	Difficulty in involving all stakeholders in planning	Use of schools, religious groups etc., as community entry points	Sustainability of community involvement

### 3.3.5. Operational approaches

Whilst this strategic document is in effect, priority interventions are as follows:

- Pre-test IEC materials in target communities prior to their promotion in those communities,
- Establish a coordination mechanism for all IEC activities in the country,
- Establish a multi-sectoral committee for malaria day celebrations,
- Celebrate malaria days as a means to reflect on malaria issues,
- Implement the community participation strategy through community capacity building in the areas of health, environmental hygiene, etc.,
- Identify and work with partners that can facilitate collaboration within communities (e.g.: schools, religious groups, community-based organizations),
- Outsource specific social promotion services from organizations with proven competence in this area,
- Assess the efficacy of the IEC strategies and materials.

### 3.3.6. Costs

			Currency: USD			
ITEM	2006	2007	2008	2009	TOTAL	
Finalisation of the National Communications Strategy	21,000	0	0	0	21,000	
Implementation of the Community Management of Fever Strategy		10,500	10,500	10,500	31,500	
Production, pre-testing and dissemination of IEC materials	525,000	525,000	630,000	420,000	2,100,000	
<b>Total</b>	<b>546,000</b>	<b>535,500</b>	<b>640,500</b>	<b>430,500</b>	<b>2,152,500</b>	

### 3.3.7. Indicators, baseline and targets (to be updated)

INDICATOR	Baseline 2001	Target 2006	Target 2007	Target 2008	Target 2009
Percentage of districts undertaking organized IEC activities (e.g.: through community radios)	0%	0%	10%	20%	30%
Availability in the HF of pre-tested and MISAU approved malaria IEC materials	NA	>1%	60%	80%	90%
Availability in schools of pre-tested and MISAU approved malaria IEC materials	0%	0%	10%	30%	≥60%

## 3.4. Emergency response

### 3.4.1. Key components

Emergency response comprises:

- Capacity for timely response to malaria outbreaks and emergencies in order to minimize their magnitude, duration and associated morbidity and mortality,
- Adequate preparedness in terms of contingency plans, emergency drug stocks and pre-positioning of malaria control supplies (equipment, insecticides and drugs).

### 3.4.2. Background

Mozambique has a certain susceptibility to malaria outbreaks as a consequence cyclones and floods which create appropriate conditions, as occurred in 2000 and 2001. The NMCP must have the capacity to forecast epidemic outbreaks with routine health information systems (HIS) data and weather forecast information. Essential to the management of emergency situations is the readiness of provincial and district contingency plans, and pre-positioning of emergency supplies.

### 3.4.3. Situational analysis

In February 2000, heavy rainfall in southern Africa caused large-scale flooding in southern Mozambique, with 950,000 people needing humanitarian assistance. Until April 2000, approximately 250,000 people lived in displacement camps in the affected areas of Maputo, Gaza, Inhambane and Sofala provinces. A similar situation occurred at the end of January 2001, when heavy rainfall caused large-scale flooding in Zambézia, Tete, Manica and Sofala. Response to these emergencies included IRS of accommodation centres, a temporary change to the malaria treatment policy, distribution of ITN and an active surveillance in sentinel sites.

The National Disasters Management Institute (INGC) was established to coordinate, supervise and ensure timely response to emergency situations.

The United Nations System in Mozambique also has an emergency management team. Following the 2000 and 2001 floods, contingency plans have been developed.

#### 3.4.4. SWOT analysis

Strengths	Weaknesses	Opportunities	Threats
Collaboration with the INGC and the United Nations System emergency management team	Reactions and actions against malaria are undertaken only by MISAU	INGC is aware of the need to include prevention of epidemics, including malaria in its contingency plans	Lack of qualified staff for emergency management
Availability of contingency plans and funding (for purchase of insecticides, drugs and other essential supplies)	Weak malaria case notification capacity (delays that hinder early detection of outbreaks)	Improved weather forecasting capacity	Increased resistance of <i>plasmodium falciparum</i> to SP, a drug that has been used in emergencies

#### 3.4.5. Operational approaches

Whilst this strategic document is in effect, priority interventions are as follows:

- Improve coordination between MISAU, INGC and the United Nations System in Mozambique for emergency forecast and management,
- Improve notification of malaria cases for timely forecasts or detection of malaria outbreaks,
- Implement a set of key emergency interventions designed to minimize any eventual increase in malaria cases, including:
- Operational and logistical support for emergency malaria situations in areas affected by floods;
- Contingency plans, including pre-positioning of insecticides, ITN, drugs and other basic supplies.
- Rapid implementation of vector control activities (mainly fumigation and IRS within one month of detecting a malaria outbreak).
- Distribution of ITN and other personal protection measures, including an educational component, within six months following detection of a malaria outbreak,
- Fund raising to respond to malaria epidemic outbreaks,
- Refresher courses in emergency response for health workers.

#### 3.4.6. Costs

				Currency: USD	
ITEM	2006	2007	2008	2009	TOTAL
Refresher course in emergency management for health workers		21,000	21,000	21,000	63,000
Contingency funds		840,000	0	840,000	1,680,000
<b>Total</b>		<b>861,000</b>	<b>21,000</b>	<b>861,000</b>	<b>1,743,000</b>

### 3.4.7. Indicators, baseline and targets (to be updated)

INDICATOR	Baseline 2001	Target 2006	Target 2007	Target 2008	Target 2009
Number of provinces with response plans for emergency situations	0	100%	100%	100%	100%
Existence of district endemic channels in DDS	0	50%	75%	100%	100%
Availability of stocks of insecticides, antimalarial drugs and other emergency supplies at central level	0	yes	yes	yes	yes
Availability of an updated national contingency plan	0	yes	yes	yes	yes

### 3.5. Programme management and systems development

#### 3.5.1. Key components

Key components of the systems development programme are the following:

- Coordination of malaria control activities and training,
- Planning, monitoring and supervision of activities,
- Periodic review and evaluation of specific programme areas and the global impact of the NMCP,
- Strengthening of existing and establishment of new partnerships to roll back malaria in Mozambique.

#### 3.5.2. Background

To achieve appropriately implemented malaria control activities in Mozambique, there is a need to strengthen and expand partnerships to community level. There is a need to respond to a shortage at all levels of the NHS of both qualified human and material resources. Also, quality control and measurement of the impact of malaria control activities throughout the country must be maintained through training, supervision and monitoring, as well as periodic national reviews and evaluations. Partnerships are fundamental to improving coordination of activities of the RBM initiative. To this effect, the National Malaria Control Programme needs to involve new partners and strengthen existing partnerships.

#### 3.5.3. Situational analysis

The NMCP was created as a unit within the Epidemiology Section and Department of Epidemiology and Endemic Diseases, is part of the Communicable Diseases Unit which implements integrated strategies for disease control.

The NMCP team at central level comprises fifteen members, namely:

- One Programme Manager (Medical Doctor)
- One Clinical Adviser (Medical Doctor, on a part-time basis)



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- Three National Spraying Supervisors (one preventive medicine technician, one biologist and one veterinarian)
- Two Entomologists (biologists)
- Two Entomology Assistants
- One IEC Officer
- One National Supervisor for Malaria Laboratorial Diagnosis (biologist)
- One Finance Manager
- One Data Manager (medium-level informatics technician)
- One Secretary
- One Cleaner

At provincial level, the implementation and coordination of health services management is under the responsibility of the DPS, more specifically, the Chief Medical Doctor. The recently created position of Provincial Coordinator for Malaria, STI/HIV/AIDS, TB/Leprosy reports directly to and supports the Provincial Chief Medical Doctor. At district level, the district health team is responsible for implementation and coordination of disease control activities.

The NMCP actively collaborates with other areas in the MISAU, particularly with Reproductive Health and the IMCI strategy. The programme also links into the Health Promotion Unit (RESP) and has close linkages with the Medical Assistance Laboratory Section and the INS, in addition to coordinating with the Pharmaceutical Department and almost every other department within MISAU.

In 2005, the National Malaria Control Commission (CNLM) was established, as a decision-making board led by the MISAU. The scope of the NMCC includes policy orientations and relevant strategies for malaria control in Mozambique, namely vector control (including ITN and IRS), malaria case management, monitoring and evaluation, operational research, and IEC. It is a multi-disciplinary commission comprising senior management officials from MISAU. In concrete terms, the commission is comprised of Senior Clinicians, the NMCP Manager, the Heads of the Pharmaceutical, Administration and Management and Community Health Departments, the Head of RESP, the INS Scientific Manager and representatives from the Pharmacology Department at the Faculty of Medicine, Eduardo Mondlane University. The CNLM may invite senior representatives within MISAU and other relevant sectors, in particular DPS, DDS, Ministries of Education, Agriculture, Industry and Commerce, Environment and Finance, as well as representatives from the private sector that support malaria control activities. The CNLM has the back up of technical groups for each of the specific strategies responding to specific issues. In turn, these technical groups report to the Commission.

Besides the CNLM, there is a partners' forum directly involved in malaria control (**Malaria Control Technical Coordination Committee**), which supports policy design and strategy development, including relevant operational aspects of the

NMCP. Members include WHO, UNICEF, USAID, Malaria Consortium, PSI, CISM (Manhiça Research Centre), LSDI and the INS .

The main sources of funding include the State Budget, the Common Fund and other vertical sources, among which USAID, DFID, SAIC, Italian Cooperation and WHO are significant.

Mozambique is a founding member of the Libombo Spatial Development Initiative, a malaria control programme involving Mozambique, Swaziland and South Africa. LSDI was established with the purpose of protecting areas of economic and touristic importance and provides a good example of collaboration and coordination within the RBM initiative. LSDI currently covers six districts in Maputo province, except Matola and Manhiça, and will soon be expanding activities to Gaza province.

Following the encouraging results of LSDI, MISAU has decided to partially replicate this initiative in Zambézia province. The aim being not only to accelerate malaria control, as well as to create greater national capacity for scaling up of malaria control in other areas of the country.

#### **3.5.4. SWOT analysis**

<b>Strengths</b>	<b>Weakness</b>	<b>Opportunities</b>	<b>Threats</b>
Strategic reforms in the health sector	Shortage of qualified human resources at all levels	Strong government support	Low motivation of health workers
Policy Statement	Slow pace of African governments towards attaining Abuja Declaration targets	Strong support from government and cooperation partners	Conflicting priorities
Prompt support from the major funding agencies	Limited private sector support to the health sector	LSDI project More partners interested in collaborating	Difficulties in harmonising strategies with other partners

#### **3.5.5. Operational approaches**

Whilst this strategic document is in effect, priority interventions are as follows:

- Strengthen human capacity at all levels in malaria control and improve infrastructure and equipment, mainly at provincial and district levels,
- Organize regular training courses for health workers,
- Continuously support pre-service training,
- Seek innovative ways to motivate staff,
- Advocate at relevant levels for attainment of Abuja Declaration targets,
- Strengthen programme integration in order to address conflicting priorities,

- Strengthen existing and establish new partnerships (including the private sector),
- Strengthen regional collaboration in malaria control,
- Ensure full and regular functioning of the CNLM, as well as collaboration with other relevant Ministries, such as Education, Agriculture and Environment, with the objective of synchronizing inter-ministerial activities,
- Continue to convene the Malaria Annual Meeting,
- Strengthen the role of the **Malaria Control Coordination Committee**,
- Carry out an evaluation of the NMCP in 2006 and update the strategic plan.

### 3.5.6. Costs

	Moeda: USD				
ITEM	2006	2007	2008	2009	TOTAL
Equipment	33,600	28,000	29,400	30,870	121,870
Human Resources	42,000	105,000	105,000	105,000	357,000
Training	21,000	36,750	27,300	54,600	139,650
Programme Meetings	52,500	52,500	52,500	52,500	210,000
Consultancies	10,500	10,500	10,500	10,500	42,000
<b>Total</b>	<b>159,600</b>	<b>232,750</b>	<b>224,600</b>	<b>253,470</b>	<b>870,520</b>

### 3.5.7. Indicator, baseline and targets (to be updated)

INDICATOR	Baseline 2001	Target 2006	Target 2007	Target 2008	Target 2009
In-service training of personnel recruited to the NMCP	0	50%	75%	100%	100%

## 3.6. Monitoring and evaluation (surveillance, information and research)

### 3.6.1. Key components

Routine surveillance currently consists of weekly monitoring of outpatient cases and monthly monitoring of inpatient cases at health facilities. This strategy should be strengthened in order to ensure:

- The weekly surveillance system is sufficiently sensitive to detect malaria outbreaks through use of existing channels, but also able to provide specific factual information on the efficacy of the different malaria control measures in use,
- Monthly surveillance (rural and in general hospitals) is sufficiently sensitive to monitor the impact of interventions on malaria morbidity and mortality,
- Collection of information from different routine sources, surveys and operational research to allow evidence-based planning.

### 3.6.2. Background

The Health Information System is an important tool for measuring the impact of malaria control interventions, as well as for funding allocation and planning processes. The system in place needs to be improved in order to generate quality information in a standard format. There is a need to develop and implement a comprehensive, relevant research agenda to ensure operational research is performed. This will provide relevant information for programme planning, choice of intervention, resource allocation, etc.

### 3.6.3. Situational analysis

The epidemiological surveillance system in Mozambique has only recently started to record outpatient malaria cases in peripheral health facilities (late 1990's). The system still needs to be improved in order to generate quality information in a standard format. Despite its poor quality, HIS data is used to measure the impact of interventions, as well as to support the programme planning process.

An operational research programme is underway and includes antimalarial drug efficacy testing, testing of vector susceptibility to insecticides, periodic KAP surveys, etc. The programme needs to be expanded to ensure appropriate and timely response to essential programme management issues.

### 3.6.4. SWOT analysis

Strengths	Weaknesses	Opportunities	Threats
Existence of the integrated disease surveillance system	Limited usefulness of the HIS	The current restructuring of the HIS and of MISAU's M&E system Availability of WHO in collaborating in this activity	Lack of integration of some programmes
Availability of sentinel sites for monitoring the efficacy of some interventions	Lack of human resources devoted to this activity	More partners interested in this activity	Vertical nature of programmes
Availability of some research institutions with the necessary capacity	Lack of dialogue among research institutions and disease control programmes	Renewed focus on the need to integrate services	Overloaded and poorly motivated health workers at the most peripheral levels
	No database on research and evaluation activities	Availability of a Data Manager in the NMCP	Some partners are not willing to collaborate

### 3.6.5. Operational approaches

Whilst this strategic document is in effect, priority interventions are as follows:

- In collaboration with the INS, improve the HIS and the use of information generated in evidence-based planning,
- In collaboration with the INS, carry out baseline surveys in 2006 (including treatment-seeking behaviour and quality of case management) and coverage for prevention measures,
- In collaboration with the INS, identify priority research activities and develop a national operational research plan that will provide information for programme planning and management,
- In collaboration with the INS, continue drug and insecticide efficacy monitoring,
- Define guidelines for preparation of reports by implementing partners,
- Define the timeframe for submission of reports to the NMCP.

### 3.6.6. Costs

				Moeda: USD	
ITEM	2006	2007	2008	2009	TOTAL
Annual ITN evaluation	147,000	10,000	31,500	52,500	241,500
Baseline surveys and evaluation	472,500	52,500	577,500	63,000	1,165,500
Monitoring of resistance to insecticides, drugs and pharmaco-vigilance	21,000	157,500	367,500	157,500	703,500
Operational research	31,500	52,500	63,000	78,750	225,750
<b>Total</b>	<b>672,000</b>	<b>273,000</b>	<b>1,039,500</b>	<b>351,750</b>	<b>2,336,250</b>

### 3.6.7. Indicators, baseline and targets (to be updated)

INDICADOR	Baseline 2006	Target 2006	Target 2007	Target 2008	Target 2009
Percentage of sentinel sites (provincial hospitals) that annually update baseline data on malaria burden (morbidity and mortality)		≥ 90%	≥ 90%	≥ 90%	≥ 90%
Number of sentinel sites that annually update baseline data on vector bionomics and transmission dynamics	6	6	6	6	6

## 4. Summary of costs

ITEM	2006	2007	2008	Currency: USD	
				2009	TOTAL
3.1.6 Diagnosis and treatment	94,500	13,182,453	14,442,453	15,072,453	42,791,859
3.2.6 Vector Control	0	42,298,811	50,777,241	39,694,555	132,770,607
3.3.6 Social and Community Promotion and Mobilization	546,000	535,500	640,500	430,500	2,152,500
3.4.6 Emergency Response	0	21,000	861,000	861,000	1,743,000
3.5.6 M&E (Surveillance, Information and Research)	672,000	273,000	1,039,500	351,750	2,336,250
3.6.6 Programme Management	159,600	232,750	224,700	253,470	870,520
<b>Total</b>	<b>1,472,100</b>	<b>56,543,514</b>	<b>67,985,394</b>	<b>56,663,728</b>	<b>182,664,736</b>

## 5. Annex 2: Summary of key monitoring and evaluation indicators

### 5.1. Global impact goal:

- Reduce malaria burden by half (malaria parasite prevalence and case fatality rate) by 2015, as compared to levels found in 2001 (40% - 80%), and therefore achieve the Millennium Development Goal related to malaria control (refer to Health Policy Statement).

#### 5.1.1. Specific impact targets

INDICATOR	Baseline 2001	Baseline 2006	Target 2010	Target 2015	Source
1. Reduction of severe malaria incidence rate in children under five	55/10,000		41 /10,000	22,5/10 .000	
2. Reduction of proportional mortality rate due malaria in children under five	30%		22.5%	15%	
3. Reduction of malaria parasite prevalence rates in pregnant women	20%		15%	10%	
4. 25% and 50% reduction of malaria case fatality rates in 2010 and 2015 respectively, compared to observed levels in 2006* in pregnant women	Not yet available				
5. Reduction of malaria parasite prevalence rate in the 2 to 9 year age group	60%		45%	30%	
6. Reduction of inpatient malaria case fatality rates	7%		5%	3.5%	

**5.1.2. Specific targets for service coverage**

INDICATOR	Baseline 2001	Baseline 2006	Target 2006	Target 2007	Target 2008	Target 2009	Source
<b>Diagnosis, Case Management and Drug Supply</b>							
Percentage of children under five with fever seeking treatment from HF within the first 24 hours following onset of symptoms	17%-20%		25%	35%	50%	60%	Annual health facilities surveys
Percentage of children under five with uncomplicated malaria treated in line with the national malaria treatment guidelines in place in HF*	40%	56.7%	60%	80%	95%	>95%	Annual health facilities surveys
Percentage of children under five with severe malaria treated in line with national malaria treatment guidelines in place in HF *	28%	74.6%	≥95%	≥95%	≥95%	≥95%	Annual health facilities surveys
Percentage of pregnant women among those who attend ANC receiving at least one dose of IPT	0%		50%	60%	70%	≥80%	Annual health facilities surveys
Percentage of HF with first-line malaria treatment drugs	100%		≥95% <sup>2</sup>	≥95%	≥95%	≥95%	Annual health facilities surveys
Percentage of HF with no stock outs of first-line antimalarial drugs for a period longer than one week within the last three months*	20%	85%	≥95% <sup>2</sup>	≥95%	≥95%	≥95%	Annual health facilities surveys
Percentage of HF with malaria diagnosis means	8%		20%	80%	90%	95%	Annual health facilities surveys
Number of RDT distributed*	0	0	500.000	5.000.000	7.000.000	8.000.000	Reports from labs
Percentage of confirmed malaria cases	0	20	20	30	40	60	Reports from labs
Number sentinel sites undertaking regular monitoring of antimalarial drugs efficacy (every two years)	5	6	6	NA	6	NA	NMCP report
Percentage of districts with an active pharmaco-vigilance system**	0%	8.9%	≥10%	≥20%	≥50%	≥80%	NMCP report
Percentage of non-urban districts with at least one CHA or any other type of community activist trained in fever management and malaria diagnosis, in line with the new treatment policy in place for remote communities***	1%	ND	1%	10%	30%	40%	DPS report
Percentage of CHA or any other type of community activist with no stock outs of antimalarial drugs used in malaria treatment in the community for more than one week within the last three months***	NA	ND	0%	10%	30%	40%	Community survey every 2 years

<b>Integrated Vector Management and Personal Protection</b>							
<i>At least 60% of those at risk of malaria infection should benefit, by 2010, from the most appropriate combination of personal and collective protection measures, including IRS, ITN and other accessible and low-cost interventions.</i>							
Number of spray operators trained*	980	1.806	1.806	2.800	3.080	3.080	NMCP report
Number of sprayed houses *	754.000	1.600.000	1.600.000	2.500.000	2.750.000	2.750.000	NMCP report
Percentage of sprayed houses in target areas	60%	80%	80%	>80%	90%	90%	NMCP report
Percentage of sprayed structures in target areas	60%	80%	80%	>80%	90%	90%	NMCP report
Population protected through IRS in target areas	3,000,000	4,800,000	4,800,000	8,000,000	9,000,000	9,000,000	NMCP report
Percentage of population protected through IRS in the country	13%	25%	25%	40%	45%	45%	NMCP report
Monitoring of mosquito susceptibility to insecticides every two years	NA	6	NA	6	NA	6	NMCP report
Number of provinces that carry out annual monitoring of spraying quality (bio-assays)	3	NA	NA	11	11	11	NMCP report
Number of ITN/LLIN distributed*		800,000	800,000	2,800,000	3,600,000	2,200,000	NMCP and partners report
Percentage of households with pregnant women and children under five with at least one ITN in each district with no spraying activities.		18%	41%	85%	90%	>95%	Community survey every 2 years
Number of rural districts with ITN/LLIN distribution programmes through HF or community campaigns for pregnant women and children under five	8	70	70	100	100	145	NMCP and partners report
Percentage of children under five sleeping under an ITN in districts without spraying activities	11%	15%	30%	80%	90%	95%	Community survey every 2 years
Percentage of pregnant women sleeping under an ITN in districts without spraying activities	1%	ND	40%	90%	90%	95%	Community survey every 2 years
Percentage (national) of pregnant women and children under five with one ITN (based on the number of ITN distributed over the last three years)			28%	68%	68%	95%	NMCP and partners NMCP report
Number of sites with structured programmes for control of mosquito breeding sites	3	3	4	11	11	11	NMCP report
<b>Health Promotion and Community Mobilization</b>							
Percentage of districts undertaking organized IEC activities (e.g. through community radios)	0%	0%	0%	10%	20%	30%	Community survey every 2 years
Availability in the HF of malaria IEC materials pre-tested and approved by MISAU	NA	NA	>1%	60%	80%	90%	Community survey every 2 years
Availability in schools of malaria IEC materials for teachers pre-tested and approved by MISAU	0%	NA	0%	10%	30%	≥60%	Community survey every 2 years



<b>Emergency Response</b>							
Number of provinces with emergency response plans	0	0%	100%	100%	100%	100%	DPS report
Availability of districts endemic channels at DPS	0	0%	50%	75%	100%	100%	DPS report
Availability of stocks of insecticides, antimalarial drugs and other emergency supplies at central level	0	0%	yes	yes	yes	yes	NMCP report
Availability of an updated National Contingency Plan	0	0%	Yes	yes	yes	yes	NMCP report
<b>Programme Management and Systems Development</b>							
In-service training of personnel recruited to NMCP	0		50%	75%	100%	100%	NMCP report
<b>Monitoring and Evaluation (Surveillance, Information and Research)</b>							
Percentage of sentinel sites (provincial hospitals) that annually update baseline data on malaria burden (morbidity and mortality)			≥90%	≥90%	≥90%	≥90%	HIS report
Number of sentinel sites that annually update baseline data on vector bionomics and transmission dynamics		6	6	6	6	6	NMCP report

\*Indicators to be reported annually to the Global Fund

\*\*Take advantage of integration with the HIV/AIDS and TB programme

\*\*\*In the context of the implementation of the community involvement strategy

## 6. Map of Mozambique

