Federal Ministry of Health,
National Malaria Control Programme,
Abuja, Nigeria.

Strategic Plan 2009-2013

A Road Map for Malaria Control in Nigeria

DRAFT 16 June 2008

Foreword

Nigeria faces a promising future with regard to malaria control and the reduction of the ill-health and death caused by malaria. My Ministry has tirelessly worked on developing a Strategic Framework that is consistent with our vision to improve life expectancy and change the course of health care provision through a focus on outcome and impact related achievements. We are therefore clearly focused on meeting the challenges of translating strategies into service delivery; a challenge that finally, now is beginning to lead to an anticipation and expectation that we are clearly addressing inherent weaknesses in our health system.

Malaria can be classified as the first of the conditions causing most illness and death in the country. This is apart from the leading condition in the areas of child health and reproductive and maternal health. Furthermore, malaria effects have negatively impacted on different demographic and socio-economic groups. For instance, under five children and pregnant women are known to be relatively more adversely affected as demonstrated by the estimates that 11% of maternal related mortality is related to malaria in pregnant women. This contributes to the relatively high MMR in the country. Currently, there are, at least 30% more deaths of Under Five children than there ought to be due to malaria. These trends are of more than major concern and burden to the Government and the Nigerian population at large.

The health sector has faced some resource constraints, which have been acute in terms of successful programme implementation. This situation has previously limited effective resource allocation in terms of sustained priority resource allocation and sustained, continuous intervention and service provision for purposes of achieving desirable results and health status changes.

I am glad to note that in the last three years the resources' landscape has partially changed and changed for the better. In particular, during 2005, the resource situation has improved significantly. This has been both in terms of our partners' collaboration as well as additional financing. Although we are constrained and mindful of the need to address the human resource capacity constraint, I however, now have cause for optimism and belief that we are indeed on the threshold of a new health system improvements through the Health System reform. The increased levels of partnerships in the area of malaria control programme provide a solid foundation for ensuring that we hold the control programmes within our planning, management and operational controls. Although partners can provide some essentials, the challenge falls firmly upon us to ensure success through accountable performance which will be determined through the changes to the health conditions of the people.

Our focus on improving the health system has been supported through the years by our traditional partners, such as WHO, UNICEF, DFID, the Global Fund to Fight HIV and AIDS, TB and Malaria. Partners such as the World Bank have now come on board in the fight against malaria to ensure that within the course of the next three years we begin to reverse malaria impact and sustain this by the end of the five year strategic plan period.

In order for the gains to be sustained and impact achieved, the emphasis will be on the use of proven interventions coupled with necessary process initiatives within the local context that will ensure and assure success. The success of the programme is based on the following principles:

- Access to effective case management, rapid scale up or expansion of all relevant and proven interventions.

  - Key interventions involved included, effective case management,
  - Distribution of Insecticide Treated Nets, IPT with SP for pregnant women
  - Indoor Residual Spraying where applicable,
- Universal access to the relevant interventions
- Ensuring equity through a community based approach and focus on hard to reach communities.
- Access to all malaria interventions should be treated as public health good

The coverage of the programme as mentioned will be through-out the country and interventions will be based on relevance, cost-effectiveness and local context and environment.

It is my conviction that this Strategic Plan is committed to the improvement of health and towards rolling back and maintaining the gains in malaria control.

I wish to take this opportunity to thank all our Partners and other Stakeholders, and assure the General Public that Government is determined to bring general improvements in health care services and ultimately improve their health status.

Dr. Hassan Muhammad Lawal CON
Supervising Minister of Health

Acknowledgement

First, our sincere gratitude goes to the Almighty God who made it possible for us to achieve this feat of completing our 2009-2013 National Strategic Plan on time.

We thank the Honourable Minister of Health, the Honourable Minister of State for Health, the Permanent Secretary, our Director of Public Health for all their advice and support.

We are grateful to the 36 States and FCT for their timely submission of their Strategic Plans which made it possible for us to have a national plan.

Our special thanks also go to WHO, WB, UNICEF, USAID, ENHANSE, DFID, Malaria Consortium, SFH, YGC and all our other Development and Commercial partners who worked very hard with us to make sure the Strategic Plans are completed and ready.

We also thank all the international consultants from RBM Secretariat, Geneva, WB, Malaria Consortium and other agencies who assisted in the preparation of the Strategic Plans.

Dr T. O. Sofola
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Acronyms

ANC	Ante-Natal Care
BCC	Behaviour Change Communication
CCM	Central Coordination Mechanism (GFATM)
DFID	Department for International Development (UK)
EPI	Expanded Programme on Immunization
GFATM	Global Fund to Fight AIDS, TB Malaria
IDP	Immunization Days Plus
IEC	Information, Education, Communication
IPD	Immunization Plus Days
IPT	Intermittent Preventive Treatment
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Net
IVM	Integrated Vector Management
LLIN	Long-lasting Insecticidal Net
LQAS	Lot Quality Assurance Sampling
NAFDAC	National Agency for Food and Drug Administration and Control
NMCP	National Malaria Control Programme
PMI	President's Malaria Initiative (US)
PMV	Pertinent Medicine Vendors
RBM	Roll Back Malaria
RDT	Rapid Diagnostic Test
RMM	Roll Model Mothers
SFH	Society for Family Health
SP	Sulphadoxine/Pyrimethamine
UNICEF	UN Children's Fund
USAID	US Agency for International Development
USD	US-Dollar
WB	World Bank
WHOPES	WHO Pesticide Evaluation Scheme
YGC	Yacobu Gowon Center

Executive summary

Para on past achievements and current situation

Vision, goal overall and specific objectives

Main targets

Para on implementation

Para summarizing resources and gaps

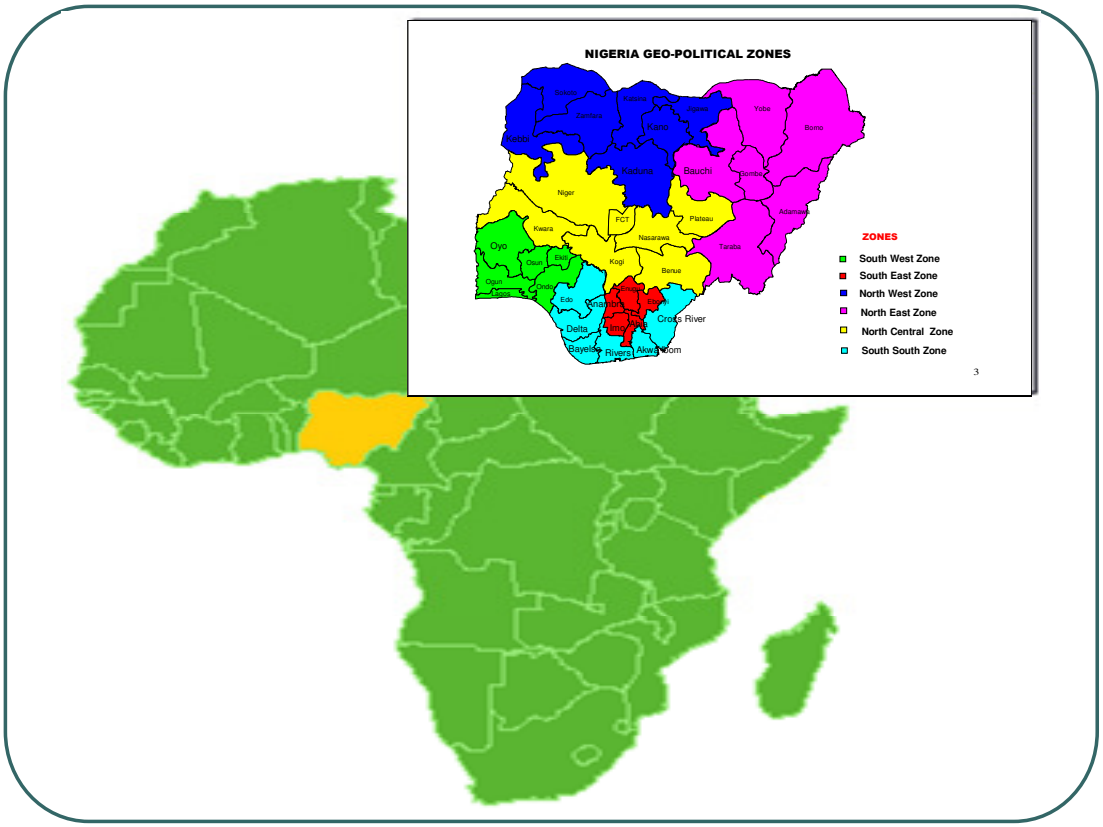
1. Background and Malaria Situation

1.1. Country Profile

1.1.1. Environment

Nigeria lies on the west coast of Africa with a surface area of 923,708 sq. kilometres. It borders Cameroon in the East, Benin on the west, Chad to the North- east, Niger to the north and on the south by the Atlantic Ocean. The lowlands of the south dovetail into the plateaus and hills at the centre, with mountains in the southeast and plains in the north. The climate varies from arid in the North with annual rains of 600-1,000 mm and 3-4 months duration to humid weather to the south with an annual average of 1,300-1,800 mm (and in some coastal areas up to 2,500 mm) and 9-12 months duration. The country's vegetation changes from Sahel savannah in the far north followed by Sudan savannah merging into Guinea savannah in the middle belt, then rain forest in the south and mangrove forest in the coastal areas. Majority of the people are farmers. Per Capital Gross National Product (GNP) is US$582 (2005) and 54.7% of the population live below the poverty line (2007). The country is linked with network of roads, internal waterways and railway lines.
English is the official language although there are over 250 different languages spoken, the commonest being Hausa, Ibo and Yoruba. Nigeria is made up of six geopolitical zones and 36 States and the Federal Capital Territory as represented in the map below. There are 774 Local Government Areas and 9,555 wards.

Figure 1: Nigeria with its major geopolitical zones and states



1.1.2. Demography

According to the 2006 census Nigeria then had a population of 140 million people and is by far the most populous country in Africa with a fairly high average population density of 156 per square kilometre. The population growth rate is high, currently estimated at 3.2% and, accordingly, the proportion of children under 5 years of age is 20%, the proportion of the population pregnant during one year 5%.

Demography

Indicator	2008	2009	2010	2011	2012	2013	Source (and year)
Total population	144,483,655	149,107,132	153,878,561	158,802,674	163,884,360	169,128,660	Census 2006
Average Household Size	5.0	5.0	5.0	5.0	5.0	5.0	NMCP 2007
Total households	28,896,731	29,821,426	30,775,712	31,760,535	32,776,872	33,825,732	NMCP 2007
Number of pregnant woman	7,224,183	7,455,357	7,693,928	7,940,134	8,194,218	8,456,433	NMCP 2007
Number of infant	4,765,993	4,918,505	5,075,897	5,238,325	5,405,952	5,578,942	Census 2006
Number of under-fives	28,896,731	29,821,426	30,775,712	31,760,535	32,776,872	33,825,732	Census 2006
Percentage of population living in urban areas	36.3%						NBS 2005

1.1.3. Health System and Health Status of the Population

The public health system of Nigeria is divided into three tiers each of which is associated with one of the administrative levels of government (see Figure 2). Data from a number of surveys conducted between 1999 and 2001 give the following estimates for the number of public sector health care facilities:

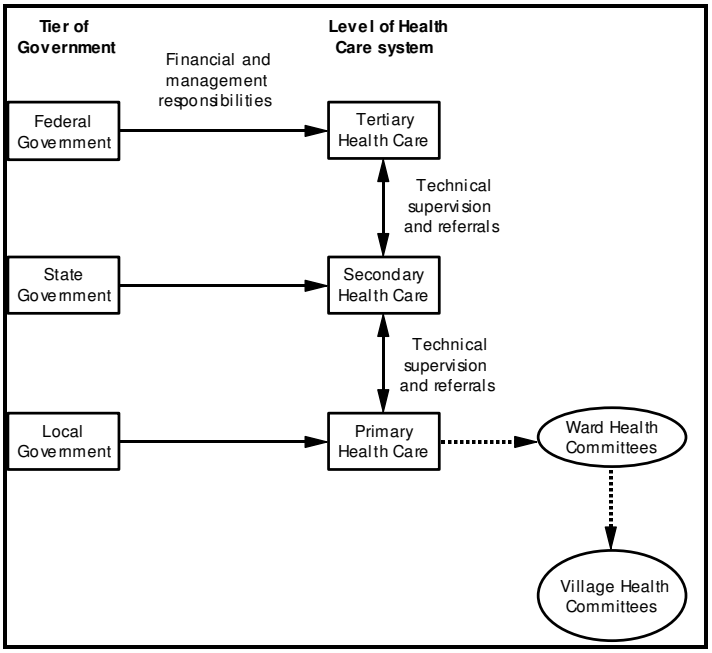
- There are 53 tertiary and specialised hospitals giving a population to facility ratio of 2.1 million people per hospital
- There are 855 secondary health facilities in the 36 states and federal capital territory giving a population to facility ratio of 135,000 people per facility
- PHC facilities are 13,000 in number with a population to facility ratio of 5,500 people per facility. These PHC facilities comprise health posts, clinics and dispensaries and tend to provide lower level services
- The population to facility ratio of PHC centres is 24,000 people per centre. These centres tend to provide higher level services than PHC facilities.

The private health care system consists of formal tertiary, secondary, PHC health facilities, pharmacies as well as informal PMV and drug sellers. The private sector comprising the not-for-profit and for-profit health facilities provides health care for a substantial proportion of the population. For example, in the period 1999-2001, although only 2% (n=1) of tertiary hospitals are private, 72% (n=2,147) of secondary health facilities and 35% (n=7,000) of PHC facilities are private. There are 2,751 registered pharmacies giving a ratio of 42,421

people per pharmacy. The informal private sector consists of about 36,000 PMV (2002 estimates) and an unknown number of drug sellers.

Services provided by the private sector are either partially subsidised as in the case of some missionary health facilities or not at all as in the case of individually owned clinics/hospitals. Their distribution therefore tends to follow a greater density in urban areas compared to rural areas except the informal PMVs and drug sellers who do establish in rural areas as much as in urban areas.

Figure 2: Overview over the public heath system in Nigeria



Sixty-four percent of the population is within 20km from a hospital. Urban areas are better served as 78% of households are within 20km of a hospital compared to 58% in rural areas. Seventy-one percent of households are within 5 km of a PHC facility. Again urban areas are better served with 80% of households in urban areas being within 5km of a PHC facility whereas 66% have similar access in rural areas. Thirty-nine percent of households live in communities visited by a community health worker (CHEW) at least once a month. The average is similar in urban areas (43%) as in rural areas (38%). Sixty percent of households live within a pharmacy or PMV (FMOH 2001 and the World Bank 2005).

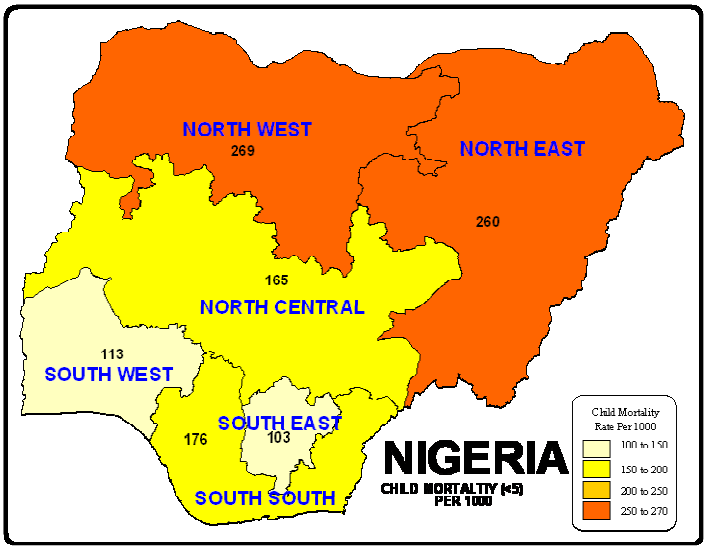
An assessment carried out by the FMOH that included a household survey found that 56% of respondents who were ill in the previous two weeks purchased drugs from a private seller compared to 35% who obtained drugs from a public health facility. A relevant finding in the 2003 NDHS, among children aged under five years who experienced symptoms of fever and or an acute respiratory infection (ARI), treatment was sought from a health facility or provider for 31.4% of them (NDHS 2003).

The most important issue in describing the epidemiological profile and health status of the population is the significant gradient between the South and the North in almost all variables. As an example Figure 3 shows the disparity in child mortality rates based on the NDHS 2003. The table below summarizes some of the core health indicators at national level.

Nigeria health indicators

Indicator	Rate/Ratio	Source (and year)
Crude Birth Rate	43/1000	World Population Data Sheet 2007
Crude Death Rate	18/1000	World Population Data Sheet 2007
Infant Mortality	99/1000	UNICEF 2006
Child Mortality	92/1000	UNICEF 2006
Under Five Mortality	191/1000	UNICEF 2006
Maternal Mortality Ratio	800/100,000 (210-1,500)	NDHS 2003
Women receiving Antenatal Care	60%	NDHS 2003
Deliveries by professionals	36.3%	NDHS 2003
Total Fertility Rate	5.9	World Population Data Sheet 2007
HIV prevalence in 14-49yr cohort	5.4%	WHO World Statistics 2006 (2004)
Per capita GDP	$ 582	World Bank 2005
Population below poverty line	54.7%	NLSS 2006
Fever cases among U5 accessing public health care (including non-profit private)	30.1%	NDHS 2003
Proportion of children receiving measles vaccine	38.3%	NDHS 2003
Proportion of U5 stunted	38.0%	NDHS 2003
Proportion wasted	9.2%	NDHS 2003

Figure 3: North-South disparity in child mortality (Source DHS 2003, map by T. Freeman)



1.2. Malaria Situation Analysis

1.2.1. Epidemiology

Situated between 4° and 13° Northern Latitude Nigeria has a suitable climate for malaria transmission throughout the country. The only exception is the area South of Jos in Plateau State where some mountain peaks reach 1600 meters and the altitude of settlements lies between 1200 and 1400 meters. This area can be considered of low or very low malaria risk.

The five ecological strata from South to North define vector species dominance, seasonality and intensity of malaria transmission: mangrove swamps, rain forest, guinea-, sudan- and sahel-savannah. Accordingly, the duration of the transmission season decreases from South to North (Figure 4) from perennial in most of the South to only 3 months or less in the border region with Chad.

The dominant species of malaria parasites is *Plasmodium falciparum* (>95%) with *P. ovale* and *P. malariae* playing a minor role with the latter being quite common as a double infection in children (see e.g. The Garki Project). Dominant vector species are *Anopheles gambiae s.l.* and the *A. funestus* group with some other species playing a minor or local role*: A. moucheti, A nili , A.pharaoensis, A. coustani, A. hancocki* and *A.longipalpis*. Within the Anopheles gambiae complex A*. gambiae s.s.* is the dominant species with *A. arabiensis* being found more often in the North and *A. melas* only in the mangrove coastal zone. A summary of the entomological inoculation rates (EIR) reported in 86 studies from Nigeria suggests that EIR for *A. gambiae s.l.* ranges from 18 to 145 infective bites per person per year and for *A. funestus* from 12 to 54.

Based on the climatic and ecological data and historical data on malaria parasite prevalence rates the MARA Project has compiled a model of likely distribution of malaria prevalence (Figure 4). This suggests that malaria endemicity is highest around the two river valleys. Taking into account this distribution as well as the population density it can be estimated that approximately 30% of the population live in areas of high to very high transmission intensity and 67% in the moderate transmission zone and these proportions have been used in the calculations. It results in an estimated number of fever and malaria episodes per person and year of 3.5 and 1.5 respectively for children under 5 and 1.5 and 0.5 for those 5 years and older and a total of 70-110 million clinical cases per year. The current malaria related annual deaths for children under 5 years of age are estimated at around 300,000 (285,000-331,000), and 11% of maternal mortality. Malaria's economic impact is enormous with about N132 billion lost to Malaria annually in form of treatment costs, prevention, loss of man hours etc.

Figure 4: Seasonality of malaria transmission

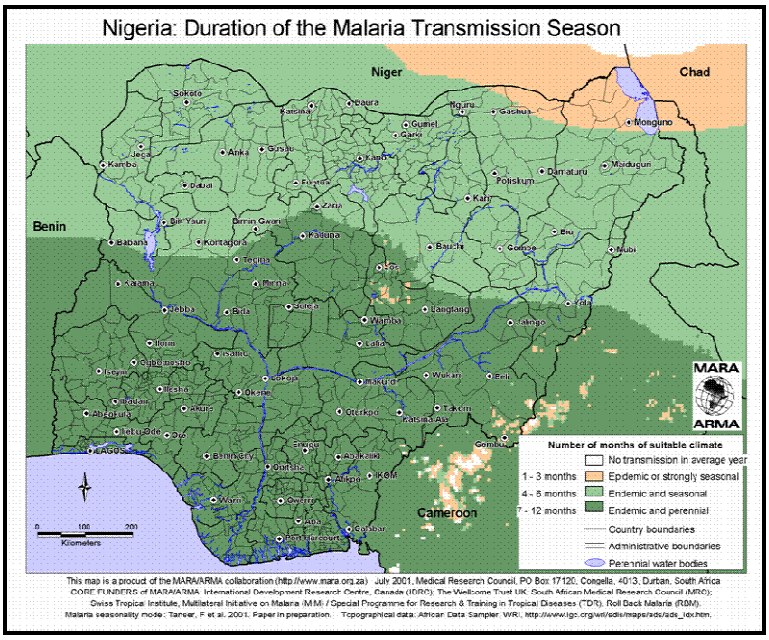
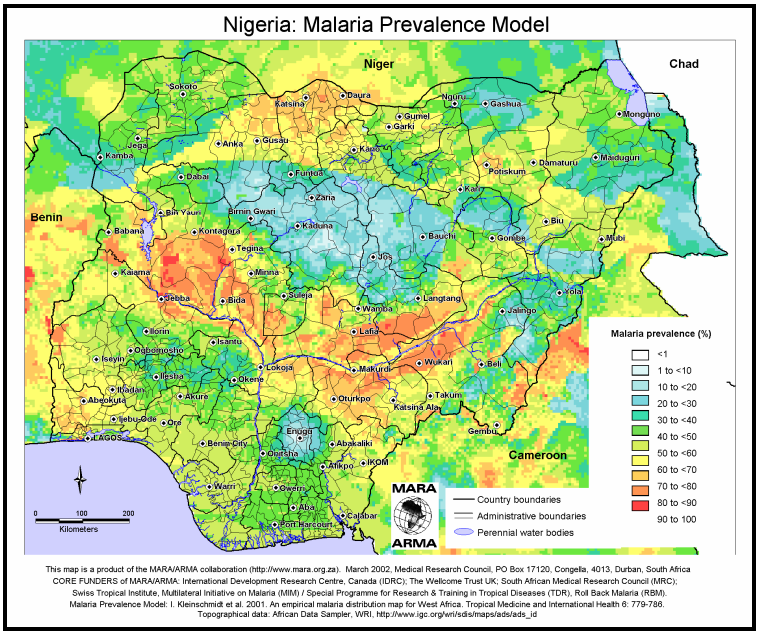


Figure 5: Distribution of projected malaria prevalence rates



1.2.2. Current Status of Malaria Control

Since the launch of Roll Back Malaria initiative in Nigeria, several control activities under the major strategic interventions have been implemented. Findings from the 2005 evaluation survey carried out to assess progress in implementation for the period 2000-2005 showed only minimal progress towards set targets. This, however, was in part due to tremendous challenges which the RBM partnership faced during that period.

The main challenges were:

- Phenomenal increase in resistance of malaria parasites to drugs which necessitated a review of the national anti-malaria treatment policy during the period under review;
- Non-availability of the relative new and very effective anti-malarial commodities such as Artemisinin based Combination Therapies (ACTs) for treatment and Insecticide Treated Nets (ITNs) for prevention.
- Efforts of the Federal Government to waive taxes and tariffs; and adapt technology for local production of active ingredients are commended.
- Limited resources to scale up these proven interventions to more than 133 million people residing in the 774 LGAs (about 9,555 wards) of Nigeria.

In the past three years, however, the situation has changed significantly and the country is now in a position where rapid progress is possible.

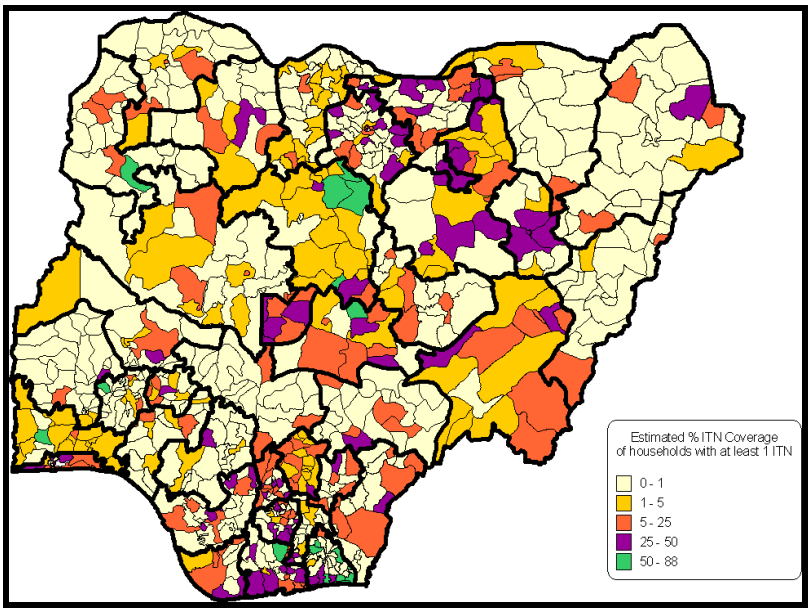
Prevention

Within the Integrated Vector Management (IVM) approach for malaria prevention ITN clearly form the major approach. Distributions are based on a mixed model that involves all form of deliveries: free public sector campaigns either integrated with other health activities such as immunizations or as "stand alone" campaigns, free public sector routine distributions through ANC and EPI services and subsidized and at cost sales through the commercial sector. Following the targets set in the previous strategic plan public sector distributions focused on children under 5 years of age and pregnant women and frequently were jointly with the EPI programme in the form of Immunization Plus Days (IPD) or in connection with mass drug administrations for other so called neglected diseases such as onchocerciasis implemented as community directed interventions (CDI). Since 2006 distribution has shifted to Long-lasting Insecticidal Nets (LLIN) and by the end of 2007 three of the five LLIN brands currently recommended by WHO were registered and available in the country and for the other two registrations were in progress.

In the commercial sector partners have been supported directly through the Netmark project and social marketing has been implemented either through subsidized sales of ITN through social marketing organizations (Futures Group and Society for Family Health) or as voucher schemes which have been supported by NetMark and Exxon Mobile. In addition, transfer of the LLIN technology to local manufacturers is encouraged and taxes and tariffs for ITN have been reduced or waived, although in early 2008 all tax waivers have been temporarily been suspended.

Since 2005 the number of ITN distributed is estimated to be 5 million (12 million since 2000 of which approximately 6 million through the commercial sector). This has led to a significant increase of household net ownership and ITN coverage rates in the 2003 estimates of 11.8% and 2.2% respectively (NDHS 2003). Based on survey data collected between 2006 and 2007 the current national coverage of households with at least one net is estimated at 30-35% and that of ITN coverage at 10-15%. Projections for each LGA based on public ITN distributions between 2005 and early 2008 suggest that currently 32 LGAs have an ITN household coverage of 40% or more and 5 above 70% (see Figure below).

Figure 6: Projected ITN household coverage based on public sector distributions in May 2008



Indoor Residual Spraying had been carried out in Nigeria in the period of the WHO malaria eradication campaign 1955-1972 mainly in the urban centres and some pilot projects (e.g. Garki Project 1969-76) but was discontinued thereafter. This means that institutional capacity to carry out IRS has to be rebuilt. This was started in 2006 with three small pilot projects in collaboration with private sector partners and use of different pyrethroid based insecticides. In 2007 two additional pilots were done and for 2008 plans are in place to start IRS campaigns in three LGAs each in the seven states supported by the World Bank Malaria Booster Project.

There is some data available on vector resistance to various insecticides (summarized in the "Entomological profile of Nigeria" commissioned by WHO) although not all geographical areas have up-to-date information. Based on these data some resistance has been reported for both major vector species against all types of insecticides. However, since most sites have reported susceptibility to pyrethroids, this will be deployed by NMCP. DDT has also been tested for resistance in the past but is currently banned from any use including public health.

The third arm of IVM, source reductions through environmental management and larval control, so far is less developed. In 2007 the IVM unit of NMCP has undertaken some advocacy at state levels for biological control and is preparing some pilot interventions but results from these are not yet available.

Treatment

Following a period of continuous increases in resistance of *Plasmodium falciparum* against the commonly used anti-malarial medicines as shown in the table below, the new Artemisinin-based Combination Therapy (ACT) was introduced in 2005 with Artemether-Lumefantrine (AL) as first line treatment for uncomplicated malaria and Artesunate+Amodiaquine (co-packaged) as alternative.

Geopolitical Area	**State**	**Adequate Clinical and Parasitological Response (%)**			
		CQ 2002	**SP 2002**	**AL 2004**	**AA 2004**

North Central	Plateau	53.2	82.7	100	96
North East	Borno	50.8	64.8	100	100
North West	Kaduna	77.3	94.2	100	100
South East	Enugu	3.7	14.9	100	100
South South	Cross River	9.1	8.5	87	82.5
South West	Oyo	40.9	75.6	100	100
Median		45.9	70.2	100	100

CQ-Chloroquine, SP-Sulphadoxine-pyrimethamine
AL- Artmether-Lumafantrine (Coartem), AA- Artesunate+Amodioquine

In 2007 a total of 17.5 million doses of ACTs (AL and AA) have been distributed in the public sector (including NGO run health facilities) or sold in the private sector at subsidized prices (through SFH). This has been good progress compared to 2006 when less than half of that figure had been distributed but still only about 25% of the approximately 70 million cases that would be expected to need ACT treatment in the public sector alone. Accordingly, the indicator of access to ACT within 24 hours for children under 5 years of age is still well below the target of 80% and was measured as 0.1% in the malaria survey of 2005 and about 1.0% in a survey in selected LGAs in 2007.

As programmatic deployment of ACTs will be scaled up to include persons above five years of age over the period of this strategic plan, a policy to introduce improved diagnosis of malaria cases through parasitological confirmation by microscopy or rapid diagnostic tests (RDT) has been put in place.

Considerable efforts have been undertaken in recent years to increase the access to treatment at community level. In 76 LGAs so called role-model mothers (RMM) have been trained to treat febrile children with ACTs. Providing ACTs as well as technical support supervision for these women is currently planned and the programme is expected to expand to more LGAs.

IPT

It is estimated that approximately 60% of pregnant women attend ANC services in Nigeria (NDHS 2003) and about 60% attend at least twice. However, due to a number of factors including problems in supply management and awareness of health workers and pregnant women the proportion of women who receive at least two doses of IPT using SP is still low (17% in the 2005 malaria survey).

2. Malaria Control Strategy

2.1. Context within National Development Framework

Although the burden of malaria significantly contributes to the poor health status of the population the strategies to control it can not be seen in isolation but are firmly embedded in the national efforts to enhance development, reduce poverty and improve health. The overall approach to malaria control, therefore, forms part of the Nigeria Revised Health Policy and the countries efforts to reach the Millennium Development Goals.

The purpose of the Malaria Control Strategic Plan 2009-2013 is to provide a common platform and detailed description of interventions for all RBM partners and sectors of society. It encourages all partners to engage themselves in malaria control with common strategies and objectives, i.e. one plan, one implementation and coordination mechanism and one M&E plan. It builds on the previous plan making the necessary changes based on the situation analysis and changes in current thinking (recommendations of WHO).

2.2. Vision

At the end of the period of this strategic plan

- **Malaria will no longer be a major public health problem in Nigeria as illness and death from malaria are dramatically reduced and families will have universal access to malaria prevention as well as treatment.**

This will lead to the achievement of the long-term vision of

- **A malaria-free Nigeria**

2.3. Goal and overall objectives

The **goa**l of the malaria control strategy is

- **To reduce by 50% malaria related morbidity and mortality in Nigeria by 2013 and minimize the socio-economic impact of the disease**

Overall objectives for the period 2009 – 2013 are

- **to nationally scale up for impact (SUFI) a package of interventions which include appropriate measures to promote positive behaviour change and to prevent and treat malaria**
- **to sustain and consolidate these efforts in the context of a strengthened health system and create the basis for the future elimination of malaria in the country**

2.4. Strategic Priorities and Principles

Building on the experiences and achievements of the previous strategic plan and based on a thorough analysis of strengths, weaknesses, opportunities and threats (SWOT) the following are identified as the key strategic priorities and guiding principles for implementation:

- Priority will initially be given to prevention as this is seen as the most feasible way to achieve SUFI and rapidly reduce the malaria burden. Efforts will also be intensified towards prompt and effective treatment of malaria although it will take more time to

build and strengthen the necessary systems for improved case management and treatment seeking behaviour.

- Focus will shift from prioritizing the biologically vulnerable as primary target groups for interventions (pregnant women, children less than 5 years of age, people living with HIV/AIDS) to universal and equitable access of all the population in order to fully materialize the potential of the preventive interventions.
- All malaria interventions will be as much as possible integrated into general health activities in order to seek synergies as well as increased cost-effectiveness and support the strengthening of the health system.
- Activities will be implemented in a broad partnership involving all sectors of society from the various levels and sectors of government, civil society organizations, traditional and religious leaders and the private sector.
- Community involvement and empowerment forms a key cornerstone of any successful malaria control and will be central during the phase of this strategic plan.

2.5. Targets

The following are the major targets for malaria control during the five year period.

- Reduction of malaria related mortality by 50% by the year 2010 compared to 2000 translating into a child mortality rate reduction from 207/1,000 live births to 176/1,000 in 2010 and 158/1,000 in 2013.
- Reduction of malaria parasite prevalence in children less than 5 years of age by 50% by the year 2013 compared to baseline of 38% in 2007.
- At least 80% of households with two or more ITN/LLIN (one net to two people) by 2010 and sustained at this level until 2013.
- Achieve at least 80% of children less than 5 years of age and currently pregnant women sleeping under ITN by 2010 and sustain coverage thereafter
- To introduce and scale up IRS to 8% household coverage in selected areas by 2010 and 20% by 2013 as a complementary strategy to ITN and ensuring at least 85% of targeted structures are sprayed in adequate quality.
- At least 80% of fever patients attending health facilities receive a diagnostic test by 2013.
- At least 80% of fever/malaria patients receive appropriate and timely treatment according to national treatment guidelines by 2013
- At least 80% of pregnant women attending ANC services and 50% of all pregnant women receive at least two doses of IPT by 2010 and these rates increase by 2013 to 100% and 75% respectively.

A more detailed list of indicators and targets by year is given in the annex

2.6. Core Malaria Intervention Package

The core interventions for malaria control during the next five years will be in order of importance

- Prevention of malaria transmission through vector control as part of an Integrated Vector Management strategy (IVM)
- Prompt diagnosis and adequate treatment of clinical cases at all levels and in all sectors of health care with special attention to management of severe malaria cases
- Prevention and treatment of malaria in pregnancy through the measures above and additional implementation of intermittent preventive treatment in pregnancy

2.6.1. Prevention/Vector Control

The overall strategy for malaria prevention is the **Integrated Vector Management** (IVM) as recommended by WHO/AFRO. This approach is integrated in two ways

- Integrating control of several co-endemic vector borne diseases which either have the same vector or where the same intervention or combination of interventions are effective
- Integrating all partners and stakeholders (e.g. various line ministries such as Health, Agriculture, Water Resources etc) into one well coordinated programme thereby achieving maximum synergies and optimal cost-effectiveness and sustainability

The **general objective** of preventive efforts is

- **To rapidly reduce transmission of malaria to the lowest possible level in the various ecological settings by**
  - Reducing vector-human contact
  - Reducing the longevity and abundance of adult vector populations
  - Reducing suitable breeding sites wherever this is feasible and sustainable

The **key interventions** that will be applied are the following

- Universal access and use of Long-lasting Insecticidal Nets (LLIN) in all parts of the country and by all population groups
- Complementary and increasing Indoor Residual Spraying (IRS) in selected areas where good synergistic effects can be achieved, where LLIN alone can not reach sufficient impact or not easily be implemented
- Use of Environmental Management and larviciding to reduce breeding where significant proportions of breeding sites can be identified and targeted

The **specific objectives** are

- To rapidly go to scale with the country-wide distribution of LLIN and shifting focus from targeting biologically vulnerable groups to universal and equitable access
- To establish sustainable mechanisms for replacement of LLIN that involve the public as well as the private sector and all parts of society
- To rapidly develop capacity to carry out high quality IRS accompanied by operational research to establish the best and most cost-effective approaches to use IRS complementary to LLIN
- To carry out pilot studies to identify the areas where other vector control interventions such as Environmental Management and larviciding can be applied in the context of IVM

The key **indicator and targets** for this section are

- At least 80% of households with two or more ITN/LLIN by 2010 and sustained at this level until 2013.
- At least 80% of children less than 5 years of age and currently pregnant women sleep under an ITN by 2010 and sustained thereafter
- At least 85% of structures in targeted areas for IRS sprayed in adequate quality.
- Proportion of households covered by IRS increased to 8% by 2010 and 20% in 2013

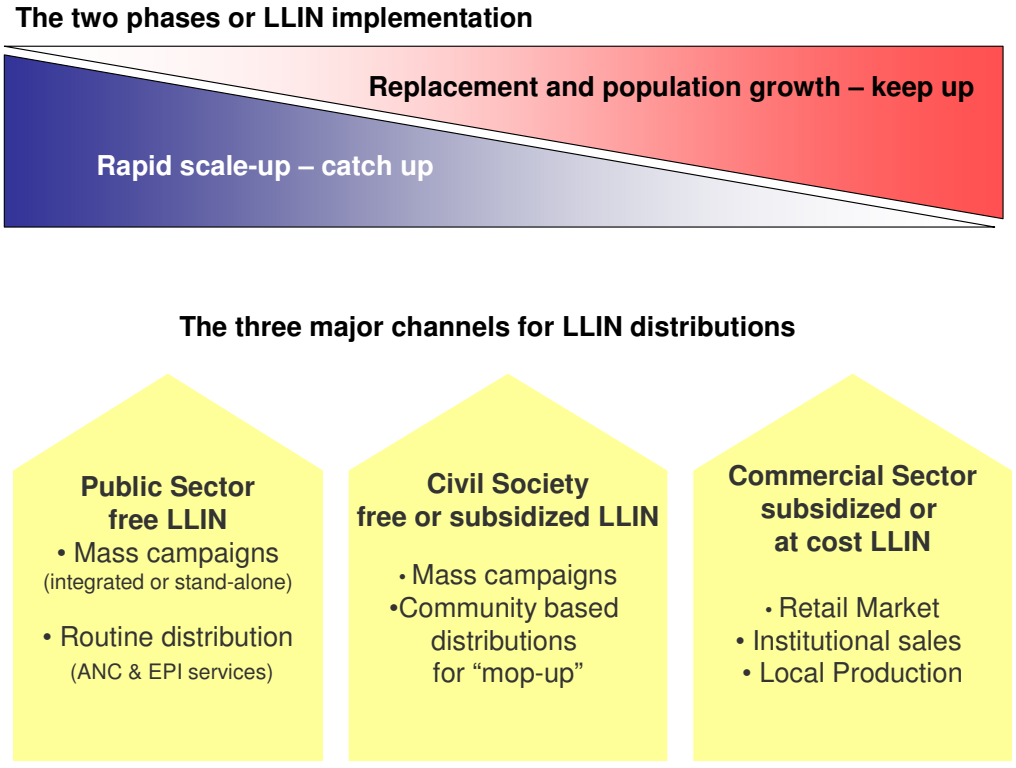
2.6.1.1. Insecticide Treated Nets

Building on the progress and successes of the previous years ITN will continue to be the most important intervention to reduce malaria transmission and prevent infections and clinical episodes.

Following recent recommendations by WHO Long-Lasting Insecticidal Nets (LLIN) will be the principle approach and their use will shift from personal protection of vulnerable groups to one of primary vector control (transmission reduction) and hence universal access of all the population to LLIN.

Given Nigeria's strong civil society and vibrant commercial sector the LLIN distribution strategy will continue to be based on a mixed distribution model in which two major phases and three major distribution channels can be distinguished (see also Fig. 7).

Figure 7: The mixed model of LLIN distribution



The first phase is one of rapid scale-up of free LLIN distributions in order to increase coverage of households to sufficient levels in the shortest time possible (catch-up phase). The second phase concentrates on the replacement of torn or worn out nets as well as supply to new family members and families (keep-up phase).

The channels and mechanisms for LLIN distributions will vary between the two phases. During the scale-up phase (2009-2010), priority is given to free LLIN distributions through mass campaigns targeting two persons per net. These campaigns will be implemented in a variety of ways through a broad partnership involving all levels of government as well as civil society organizations

- Jointly undertaken with other programmes such as vaccination campaigns or National Immunization Days (targeting children less than five years)

- Integrated into other regular distribution activities at community level (Community Directed Interventions, CDI) targeting households unreached through integrated campaigns i.e. those without under-fives.
- Stand alone LLIN distribution campaigns

Distributions during the second phase for keep-up targeting new population will include

- Free distribution of LLIN through routine health services (ANC and EPI)
- Free or subsidized distributions through community based organizations and similar structures
- Subsidized or at cost sales of LLIN through the commercial sector (retail, institutional, social marketing)

Nets distributed in 2009 and 2010 will be due for replacement by 2012 and 2013 respectively. These mass replacements would be carried out through mass campaigns using the above-mentioned channels.

All distributions will be accompanied with strong components of information and behaviour change communication in order to ensure high levels of retention and correct and consistent use of nets.

With the chosen strategy of rapid scale-up of LLIN the proportion of un-treated nets among the existing net crop will continually decrease over the next years. Therefore, large scale net re-treatment campaigns will not be cost-effective. However, local as well as individual initiatives to re-treat existing nets will be encouraged.

The commercial sector will continue to be an important partner in the roll-out of LLIN particularly in view of long-term sustainability. Therefore, previous efforts of support and creation of an enabling environment will be continued and strengthened, namely

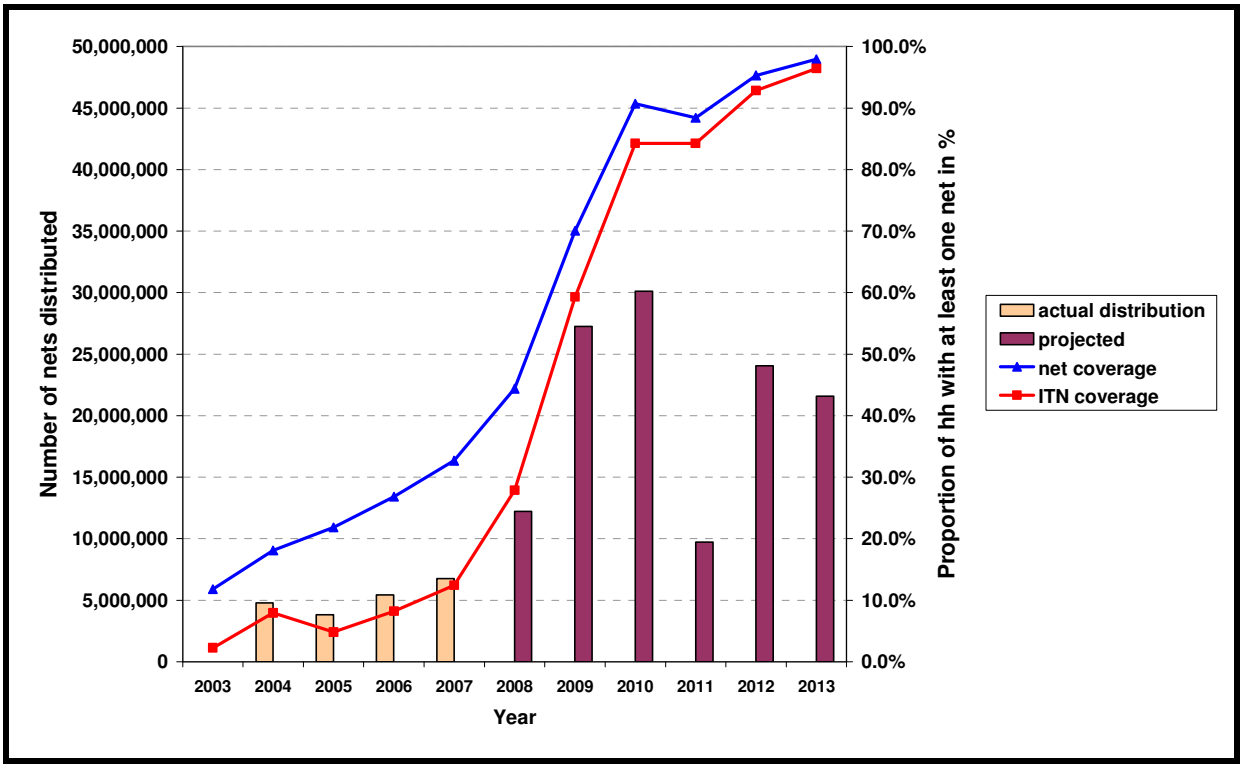
- Reaching and sustaining a status of zero taxes and tariffs for LLIN
- Encouraging transfer of LLIN technology to local manufacturers
- Support to commercial partners through projects of social marketing

The number of LLIN that need to be distributed during this strategic plan in order reach the stated targets taking into account population growth as well as loss of nets through wear and tear has been estimated as follows:

	Time period			
	2008-2010		**2011-2013**	
Target	**80%**	**100%**	**80%**	**100%**
LLIN				
Estimated no	66,097,173	82,621,466	49,314,914	61,644,892

Figure 8: Estimated ITN coverage based on projected distributions

(Source: RBM Nigeria Needs Assessment 2008)



2.6.1.2. Indoor Residual Spraying

Indoor Residual Spraying – although complementary to LLIN distributions – will form an important and increasing part of the preventive strategy. Building on the experience of the past years gained during the five pilot IRS programmes carried out in close cooperation with the commercial partners the priority of the first two years of this strategic plan will be

- To rapidly build capacity in the public sector and specifically at state level to carry out high quality IRS programmes targeting at least 85% of structures in the selected areas
- To fine tune the definition of the strategic role of IRS by carefully evaluating the experiences made in conjunction with other information on malaria transmission patterns in the various ecological settings in the country. Scenarios that will be specifically looked at as potential focus for IRS include
    - Areas where IRS is advantageous to ITNs or has a proven synergistic effect (e.g. in and around densely populated municipalities)
    - Areas with a short and limited malaria transmission season where the addition of IRS could make local elimination feasible (e.g. in the Sahel-savannah in the North-East of the country)
    - Areas where ITN have been shown to be difficult to implement (e.g. consistent low use rates)
    - Institutions such as boarding schools, police and army barracks etc. where the use of ITN is more challenging

This will then lead to a revised implementation plan for the IRS component for the remaining years of the strategic plan.

Insecticides for IRS will be chosen after careful evaluation of all aspects including

- resistance patterns of local vector populations
- cost-effectiveness
- environmental impact
- management aspects
- acceptability by the population
- medium-term strategy to prevent or delay development of resistance in the vector populations

IEC and social mobilization will play a significant role for the success of this intervention.

2.6.1.3. Other vector control measures

To further complement achievements made in reducing malaria transmission trough ITN and IRS applications all other existing or developing vector technologies will be explored for their applicability (i.e. accessibility of a significant proportion of breeding sites), cost-effectiveness and sustainability. These will include

- Environmental Management with the objective of reducing availability of suitable breeding sites. This will focus on man-made breeding sites in urban and peri-urban settings, construction sites, agriculture projects etc)
- Larval control using larvicides, predators or growth inhibitors

2.6.1.4. Quality control of insecticides, larvicides and mosquito nets

The Malaria Control Programme together with its partners in the research community will continue to monitor the sensitivity to insecticides in current use and test potential future insecticides which might provide better or more cost-effective options. Any changes in the

resistance or safety patterns as well as possible new insecticides will be incorporated into a revised vector control policy if this is thought necessary after careful consideration and consensus building by all relevant stakeholders.

The quality of public health insecticides, larvicides and mosquito nets will be regularly monitored by the relevant regulatory and enforcement agencies. The selection of LLINs for public sector procurement will be guided by international standards such as WHOPES recommendations.

2.6.2. Diagnosis and Treatment

The principle approach to diagnosis and treatment of malaria in Nigeria is to provide **prompt and highly effective anti-malarial combination therapy** for confirmed uncomplicated malaria episodes, especially in persons over five years of age. This will complement efforts of malaria prevention by

- Reducing the number of cases progressing to severe malaria
- Preventing or at least delaying development of parasite strains resistant against used anti-malaria combinations
- Contribute to reductions of malaria transmission by reducing the reservoir of parasite stages transmissible by the mosquito vector (gametocytes)

The **general objective** is

- **To achieve timely and equitable access to malaria diagnosis and treatment by all sections of the population and as close to the home as possible**

The **key interventions** that will be applied are the following

- Introduction of parasitological confirmation of malaria cases by rapid diagnostic tests (RDT) and scaling up of diagnosis by microscopy.
- Treatment of uncomplicated malaria with an ACT within 24 hours of fever onset through all health care providers (public and private)
- Expansion of access to free ACTs to community level where feasible
- Early recognition and improved management of severe malaria cases

The **specific objectives** are

- To rapidly make available ACTs at all public and faith based health facilities and ensure there correct use by health staff
- To provide free ACT to already trained role-model mothers (RMM), ensure adequate monitoring and supervision and step-wise expand this and other community based treatment approaches to all rural areas
- To introduce subsidized ACTs in the private sector and improve knowledge and treatment behaviour of staff, especially of the pertinent medicine vendors (PMV)
- To increase availability and quality of microscopy in health facilities and introduce RDTs where and when no laboratory facilities are available
- To reduce malaria case fatality by improving pre-referral treatment of severe malaria cases as well as case management at secondary and tertiary health care levels

The key **indicator and targets** for this section are

- At least 80% of fever patients attending health facilities receive a diagnostic test and are treated according to test results by 2013.

- At least 80% of fever/malaria patients receive adequate and timely treatment according to national treatment guidelines by 2013.

2.6.2.1. Diagnosis

Building up the supportive environment for implementation of diagnosis will take time. The deployment of diagnostic tools (especially RDTs) will therefore be gradual in order to gain experience and learn lessons. In the initial phase, diagnosis of under-five children will be clinical in situations where diagnosis is not immediately available.
During the course of this strategic plan it is expected that significant progress shall be made in the prevention of malaria and the target of full population coverage with ITN will be reached by 2010. This will result in a significant reduction of malaria transmission and subsequently the incidence of clinical malaria cases. Therefore it can be expected that the proportion of fever cases which are true malaria cases will significantly decline (demonstrated by a declining slide positivity rate). This further implies that the current algorithm of treating fever cases with no other obvious cause as clinical malaria will no longer be a rational approach and parasitological diagnosis will gain increasing importance for two main reasons

- To ensure rational use of ACTs and delay development of resistance
- To provide good quality of clinical care by treating malaria as well as non-malaria fevers adequately

Increasing diagnostic capacity for malaria will be integrated into a general approach of health service improvement in the public as well as the private sector and comprise of the following two elements:

- Diagnosis by microscopy in health centres and hospitals with laboratory facilities
- Diagnosis by a rapid diagnostic test (RDT) suitable for the Nigerian epidemiological setting

In addition to procurement and supply management (PSM) this component will require training of laboratory as well as other cadres of health staff, awareness creation among health workers and patients and performance improvement in order to ensure adherence to the result of diagnostic test. Implementation will be step-wise allowing for continuous monitoring of quality of diagnosis and performance and adjustment of the approach as necessary.

Focus will first be on those age groups where currently already the proportion of non-malaria fevers is higher, i.e. patients above five years of age. After 2010 parasitological confirmation will also be introduced for children less than 5 years.

2.6.2.2. Treatment of uncomplicated Malaria

Although the use of Artemisinin-based combination therapy for the treatment of uncomplicated malaria has been introduced several years ago its utilization is still below expected levels. The major reasons for this situation have been identified as

- Low coverage of public sector health facilities where ACTs are free of charge
- Insufficient supply management
- Low awareness of ACT treatment by health workers and patients
- Poor availability and high cost of ACT in the private sector

Most of these factors are linked to either the health system performance in general or to treatment seeking behaviours of the population, both of which need considerable time to be

changed. Therefore progress in the area of case management is not expected to occur quite as rapidly as in the area of malaria prevention.

In the public sector (including health facilities run by faith-based and other not-for profit organizations) the focus will be to ensure continuous supply with free ACTs based on consumption data in combination with improvements of health worker performance through refresher trainings, enhanced supervision and other measures to increase knowledge and awareness. This will go hand in hand with similar efforts targeted at the general population. Building on the experience of the previous pilots on home management of malaria fever (HMM) and the use of role-model mothers (RMM) a community-based approach of malaria treatment in children will be used to expand the reach of the public sector. Accompanied by adequate communication campaigns, supervision and monitoring of outputs and quality the HMM approach will be focusing on rural and difficult to reach areas and achieve nation-wide coverage by 2013.

For the private sector health care providers the strategy will be based on two main interventions in order to increase access and use of ACTs

- Provision of highly subsidized ACTs to all major partners and outlets
- Capacity building for health practitioners with special emphasis on the pertinent medicine vendors

The local pharmaceutical industry will be supported to increase their production of ACTs, improve quality and reach WHO pre-qualification. At the same time the possibility of local manufacturing of Artemisinin-based products from growth of *artemisia annua* via extraction and purification to actual production of ACTs will be explored.

2.6.2.3. Severe Malaria

In spite of all efforts to reduce malaria infections and prevent progression of uncomplicated malaria to complicated forms of the disease, severe malaria will still occur. Furthermore, with the shifting epidemiology of malaria as control efforts achieve impact it is expected that the major presentation (severe anaemia versus cerebral malaria) and age-groups of major risk (infants and young children versus older children, adolescents and adults) will begin to change during the period of this strategic plan requiring a very flexible approach.

A second focus of the case management strategy will, therefore, be the management of all forms of severe malaria (cerebral malaria as well as severe malarial anaemia). This will be done through four main interventions

- Introduction of suitable and easily applicable pre-referral treatment (e.g. rectal Artesunate) at peripheral health facilities as well as at community levels where this can be shown to be feasible and effective.
- Improvement and expansion of existing referral systems
- Increased availability of safe blood and blood products for transfusing severely anaemic patients as well as other relevant IV fluids and ancillary treatments
- Improvement of the management of severe disease at higher level health facilities and hospitals which not only involves availability of medicines and commodities but also skills and processes including patient triage.

2.6.2.4. Drug efficacy and quality monitoring

The Malaria Control Programme together with its partners in the research community will continue to monitor drug sensitivity of anti-malarial drugs in current use and test potential future treatments which might provide better or more cost-effective options. Any changes in the resistance or safety patterns as well as possible new drugs will be incorporated into a

revised treatment policy if this is thought necessary after careful consideration and consensus building by all relevant stakeholders.

Treatment practices as well as knowledge and skills of health care providers will be improved. Campaigns will be undertaken to increase correct treatment seeking behaviour among the population.

The quality of antimalarial medicines will be regularly monitored by National Agency for Food and Drug Administration and Control (NAFDAC) in collaboration with relevant regulatory and enforcement agencies. This will minimise the importation or sale of substandard and fake antimalarials. NAFDAC will be supported in terms of its capacity to carry out its mandate.

2.6.3. Malaria in Pregnancy

With the current high level of malaria transmission in most of rural Nigeria the major impact on pregnant women and their babies is through acute malaria episodes during first and second pregnancies, severe anaemia in the woman as well as the child and low birth weight of the newborn.

The **general objective** of control of malaria in pregnancy is

- **To protect pregnant women and their newborn children from the ill effects of malaria and thereby contribute to reductions in maternal and infant mortality**

The **key interventions** to achieve this are the following

- Prevention of malaria infections through ITN and or IRS
- Prompt treatment of clinical malaria episodes with drugs or drug combinations adequate for the stage of pregnancy.
- Intermittent Preventive Treatment in pregnancy (IPT)

As the first two interventions are covered by the previous section the following only refers to IPT alone

The **specific objectives** for IPT are

- To fully integrate activities into the ongoing work of the Reproductive Health / Maternal and Child Health Unit of the Ministry of Health of rolling out the Focused Antenatal Care package (FANC)
- To provide at least two doses of SP (three for women with known HIV infection) to all pregnant woman attending ANC service
- Improve performance of health workers and awareness of pregnant women with respect to IPT
- Increase the proportion of pregnant women who attend ANC services early in pregnancy and at least four times (FANC)

The key **indicator and target** for this section is

- 100% of pregnant women attending ANC services and 60% of all pregnant women receive at least two doses of IPT by 2010 and increasing coverage of all pregnant women to 80% by 2013.

The improvement of implementation of IPT in Nigeria can be divided into two steps. First, all of those women currently already attending ANC services at least twice within the last two trimesters of pregnancy need to be reached. This will be achieved by

- Improving procurement and supply management of SP
- Improving health worker performance through refresher training and support supervision
- Increasing awareness of pregnant women about the importance of treatment and prevention in pregnancy

The second step then is to increase the proportion of women who attend ANC services early and frequently in order to receive all necessary services of the FANC package. This will depend on general health service improvements and therefore is expected to take more time.

Monitoring of the achieved progress but also of the effectiveness of the medicine used for IPT will be an essential part of the approach. Any new development will be considered carefully and the policy and implementation strategy adjusted as necessary.

2.7. Integrated Support Systems

This section summarizes elements of the malaria control strategy which are crucial for success but cut across the various interventions.

2.7.1. Advocacy and Communication

Mobilizing the communities, local, regional and national as well as political and religious leaders to play an active role in malaria control and ensuring proper understanding of the core interventions by the population and promoting positive change of behaviours is the major purpose of advocacy and communication as part of the malaria control strategy.

The **general objective** is

- To raise the profile of and demand for malaria control interventions through targeted, well designed advocacy and communication campaigns and activities with special emphasis on the biologically and economically vulnerable

The **specific objectives** are

- To reach by 2010 at least 80% of population (communities, families, care providers and health workers) through BCC for awareness and appropriate actions on malaria prevention and treatment and sustain through 2013.
- To significantly increase the commitment (financially and politically) of states and LGAs for malaria control
- To implement professionally designed IEC/BCC campaigns that utilize all available channels of communication
- To emphasise the involvement and participation of the communities through adequate structures such as the Community Development Committees where these exist.

The key **indicators** for this section are

- Number of people reached by community outreach activities

- Number of people reached by mass media activities

Completing the revised and updated strategy for behaviour communication and respective implementation plan will be the starting point during this planning period.

2.7.1.1. Advocacy and Community Mobilization

In spite of Nigeria's considerable resources and its leading role in uniting the African community for malaria control (Abuja Targets) the commitment of the political leadership is still insufficient. Advocating among State Governors, parliamentarians, politicians, religious and traditional leaders for a better understanding of as well as more financial and organizational support for malaria control will be the main strategy and will utilize up-to-date information provided by the M&E unit of NMCP as well professional communication strategies.

Empowering the communities and thereby ensuring broad participation of the grass root level of society will be the second strategic focus in this area. Efforts will build on the existing structures such as the Ward and Community Development Committees to engage communities and families in playing an active role in malaria prevention as well as to increase correct treatment behaviours.

2.7.1.2. Communication for Behavioural Change

Recognising the importance of the understanding and acceptance of the core interventions by the population and based on the past positive experiences in Nigeria a nation-wide, professionally designed campaign will be under taken using the established communication channels and strategies including television and radio advertisement placement, posters and print materials for dissemination at the health facilities, the use of community drama performances as well as high profile annual events such as Africa Malaria Day that bring national visibility to malaria control efforts.
Preliminary assessment has been done regarding the current knowledge, attitudes and perceptions of community members in regards to malaria prevention and control and this will further be informed by planned operational research.

2.7.2. Health System Support

General objective

- Support the strengthening and expanding of the health system through staff training, supervision, effective management, efficient planning and coordination at all levels.

Specific objectives

- Contribute to the strengthening of a public health system that can deliver quality services and effectively manage supplies through the NMCP and State Malaria Coordinators.
- Support capacity building of staff through pre- and in-service training and effective support supervision
- Strengthen availability and quality of general laboratory services by using malaria diagnosis as an entry point.

The key **indicator and target** for this section is

- *Number of Village/ Community Development Committees formed and coordinated by Civil Society Organizations*
- *Number of staff receiving training in the past 12 months on programme management*

Malaria control is an important part of the National Health Policy and will only be successful if closely linked to progress in health system development in general. Health system support needs, therefore, are to be seen as a critical cross-cutting intervention within the malaria control strategy. The NMCP will strengthen its links with other RBM partners as well as other departments within the Ministry of Health and seek synergies with other programmes. As much as possible existing mechanisms for supply management, supervision and human resource development will be used and improved where needed jointly with other partners in the public and private sectors.

Particular emphasis will be put on collaboration with other programmes such as Child Health, Environmental Health, Reproductive Health, Community Development as well as logistical support for day to day operations and technical support supervision at State and LGA levels.

2.7.3. Monitoring & Evaluation and Operational Research

General objective

- Establish a sound and continuously updated database that monitors progress towards agreed targets and is used to effectively manage and adjust interventions based on evidence

Specific objectives

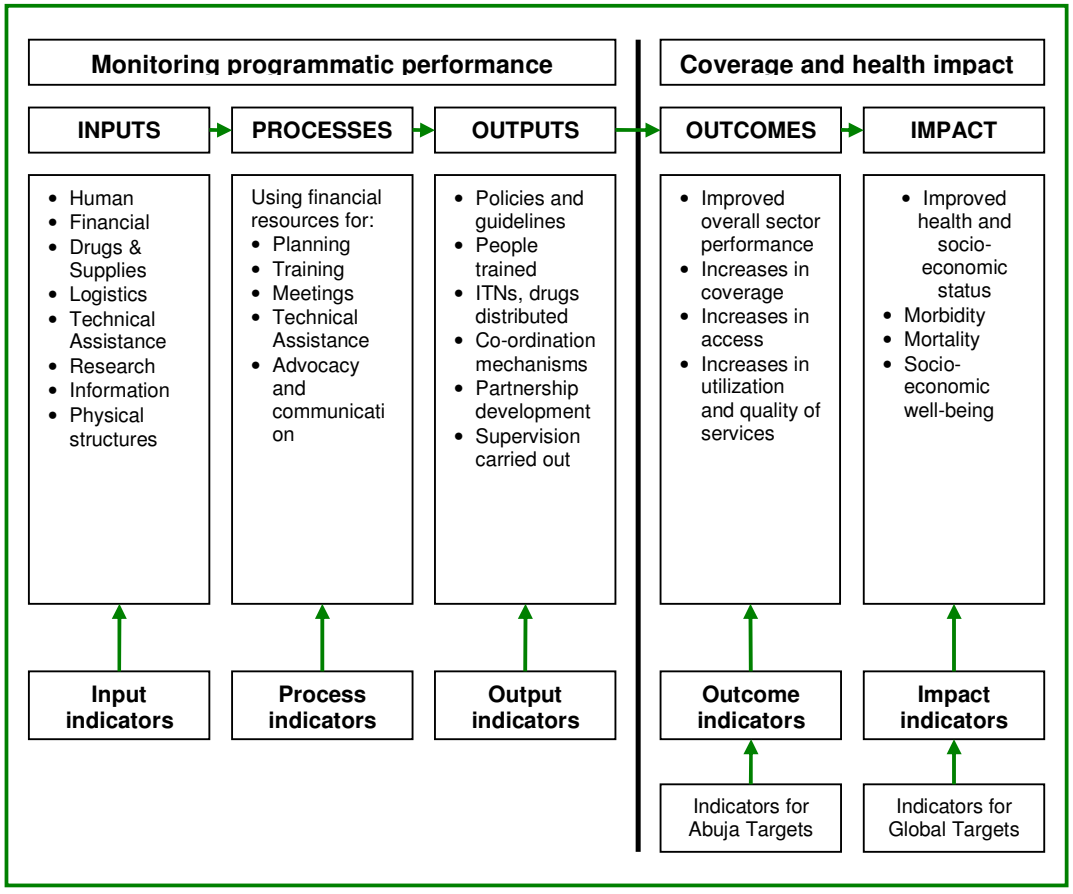
- Undertake a systematic analysis of the strength and weaknesses of the current M&E system and based on this develop a comprehensive, costed M&E plan
- Improve collection, quality and utilization of routine data to monitor the implementation of malaria related interventions through the Health Management Information System
- Regularly evaluate the progress of malaria control with respect to outcome and impact indicators through appropriate data collections including Malaria Indicator Surveys, sentinel sites and data from the private sector.
- Strengthen links between the research community and RBM partners in order to ensure that ongoing research is oriented towards the key operational questions and can provide the necessary evidence to continuously improve interventions for malaria control.

The key **indicators** for this section are

- Number of health facilities submitting timely and complete reports
- Number of staff trained on monitoring and evaluation, surveillance, and operational research per level
- Percentage of registered private-for-profit facilities reporting routine data according to national guidelines in past 12 months
- A nationally coordinated multi-year plan with a schedule for survey implementation and data analysis prepared
- Percentage of deaths covered by mortality civil registration system

All work regarding monitoring and evaluation of malaria control in Nigeria will be based on a single M&E plan that will be guiding all partners as part of the "three ones". The measurements will follow the general M&E framework recommended by the RBM Monitoring and Evaluation Reference Group (MERG) as outlined below. Developing such a comprehensive M&E plan with agreed indicators, activities and roles and responsibilities will be one of the priorities at the beginning of this Strategic Plan period. As much as possible approaches and methodologies will be harmonized and shared between partners. Implementing this M&E plan – coordinated by NMCP – will then lead to better availability and utilization of data and information at all levels of the health system and by all partners and not only avail timely information for advocacy purposes but also for continuous guidance on progress of control efforts allowing for necessary changes and adjustments to be made.

M&E Framework



2.7.3.1. Routine Monitoring systems

Routine monitoring is mainly concerned with the programmatic performance and needs to build on the Health Management Information System (HMIS). As this is currently weak with a very high level of under-reporting and low level of use of data for decision making, this area will be one of the major challenges and priorities. Focus of the approach will be

- To increase the reporting completeness and data flow for currently captured information of number of cases diagnosed and treated for malaria (ACT consumption), number of inpatient cases and deaths, number of ANC visits, IPT treatments etc.

- To add additional information systems on ITNs distributed through routine services, campaigns and through the commercial sector either as part of HMIS or as separate systems as applicable
- To ensure that these data are communicated and used at all levels by developing simple and easy to use systems of data management and presentation and train and supervise all involved staff accordingly

2.7.3.2. Measurement of Outcomes and Impact

Coverage of the core interventions and health impact will be measured in regular intervals using the following approaches

- Annual assessment of coverage in selected areas using rapid and simple to use methodologies such as LQAS and net tracking surveys.
- Systematic assessment of core indicators and malariometric parameters such as parasite and anaemia prevalence using sentinel sites which combine health facility and community based information and provide a profile of the various epidemiological strata in the country.
- Regular nationally representative surveys such as Demographic and Health Surveys (DHS), Multi-Indicator Cluster Surveys (MICS) or Malaria Indicator Survey (MIS) which include biomarkers (parasite rates and anaemia).

2.7.3.3. Operational Research

Based on the strength of Nigeria's academic community and its partnership with the Malaria Control Programme there is a strong history of operational research in malaria which can be used to provide crucial information necessary to inform continuous adjustment of policies and implementation strategies. It is important, however, that the research agenda is driven primarily by programme needs and is derived from the regular analysis of the current situation. Important initial research areas will be

- Factors influencing acceptance and use of ITN
- Current treatment seeking behaviours with respect to fever in general and malaria in particular
- Attitude and practices of health care providers
- Monitoring of drug sensitivity of currently used malaria treatments as well as candidates for future use for uncomplicated malaria, severe malaria, IPT, HMM etc.
- Monitoring of insecticide resistance to local vectors and other entomological studies
- Assessment of environmental impact of vector control interventions
- Quality of IRS and ITNs
- Impact of BCC interventions including compliance and user satisfaction

3. Implementation Arrangements

The implementation of this strategic plan will be a joint effort by all partners and stakeholders at all levels of society. Mechanisms of implementation will be multiple:

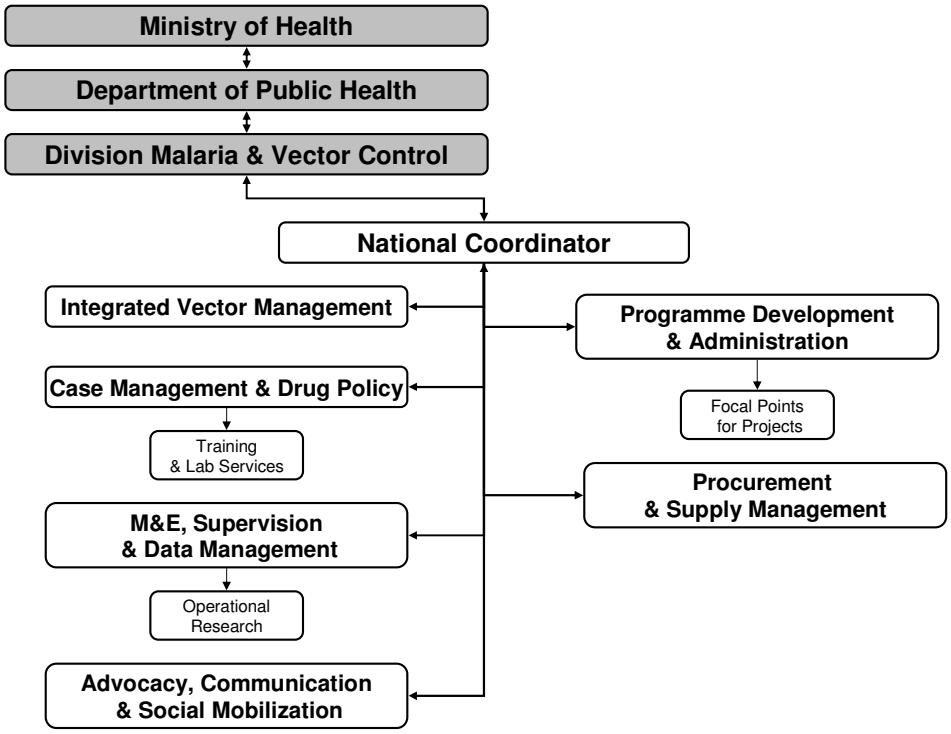
- Through the public health system and other public services (e.g. Ministry of Education) within the decentralized system of government
- Contracted out by development partners or government to civil society and private sector
- Directly undertaken by civil society or private sector

While each implementing partner may have their own rules and regulations regarding implementation, accountability and reporting there is only **one strategic plan** under which

all partners work and contribute towards, **one coordination mechanism** to ensure maximum synergy and avoidance of duplications, and **one M&E plan** to measure progress and assess impact (**the three ones**).

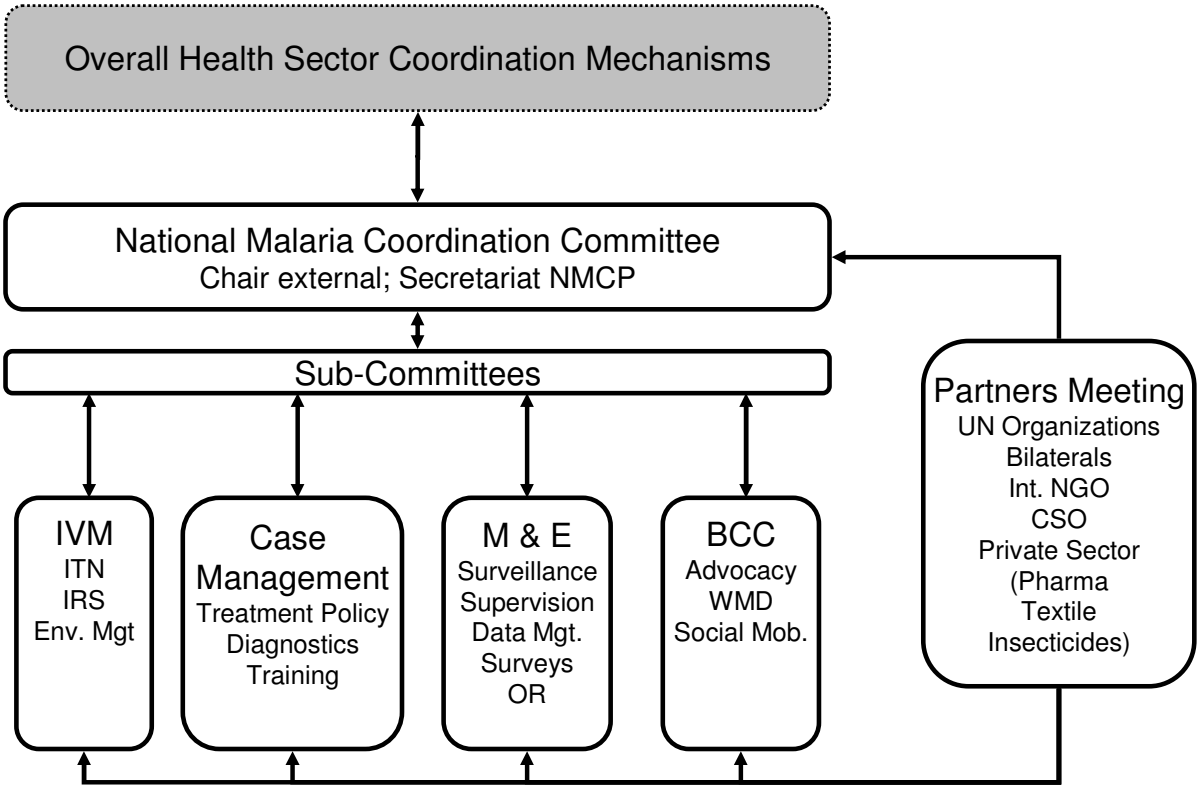
3.1. Programme Management

The Ministry of Health in general and the Malaria Control Programme in particular has the leading role of overseeing and coordinating efforts to control malaria. In order to fulfil this role the national level is organized in six units representing the core tasks as shown below. At national as well as at state and LGA level programme management is supported by various partner either by organizational support or by direct secondment of staff, capacity building and technical support.



3.2. Coordination

All partners involved in malaria control form the Country Roll Back Malaria Partnership. The central coordination mechanism for this partnership is the National Malaria Coordination Committee which is supported by four technical working groups as show in the diagram below. Revitalising these coordination mechanisms which had been somewhat neglected in the past years will be a priority and will guarantee harmonization of partners and maximum synergy of efforts.


Overall Health Sector Coordination Mechanisms
National Malaria Coordination Committee
Chair external; Secretariat NMCP
Sub-Committees
IVM
ITN
IRS
Env. Mgt
Case Management
Treatment Policy
Diagnostics
Training
M & E
Surveillance
Supervision
Data Mgt.
Surveys
OR
BCC
Advocacy
WMD
Social Mob.
Partners Meeting
UN Organizations
Bilaterals
Int. NGO
CSO
Private Sector
(Pharma
Textile
Insecticides)

3.3. Resources and Gaps

Current financing by year (2009-2013) (in million USD)

Organization	2009	2010	2011	2012	2013	Source or comment
Ministry of Health	*18.0*	*18.0*	*18.0*	*18.0*	*18.0*	
GFATM Rd 2/4	11.7					Phase 2 Rd 2+4 agreement
USAID/PMI	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	
WB Booster	40.0	60.0	30.0	24.0	0	WB Booster Project Appraisal
UNICEF	2.5	*2.5*	*2.5*	*2.5*	*2.5*	Including JICA contribution for LLIN
WHO	3.4	*3.4*	*3.4*	*3.4*	*3.4*	WHO
DFID	20.2	24.5	17.3	17.1	0	MC proposal to DFID
Total Funds Available ($)*	***98.8***	***111.4***	***74.2***	***68.0***	***26.9***	

Summary of overall funding gaps: by intervention area (in million USD)

Core interventions	2009	2010	2011	2012	2013	TOTAL
ITNs (LLIN)	213.8	285.8	60.0	206.1	211.4	982.4
IRS	5.1	12.6	15.6	26.2	38.9	98.7
IPT	0	0	0.9	1.1	1.2	3.2
Diagnosis	21.5	40.2	40.5	46.0	46.3	197.1
Treatment	37.6	45.7	52.0	65.9	77.4	292.4
IEC	35.0	40.0	38.0	38.0	38.0	213
M&E	6.0	6.0	8.0	5.0	5.0	30.4
Management	30.0	28.0	19.0	13.0	13.0	116.4
TOTAL	**349**	**458.3**	**234**	**401.3**	**431.2**	**1,933.6**

Summary of major commodity requirements

Commodity		2008	2009	2010	2011	2012	2013	TOTAL
LLINs	Target coverage (RBM or national if higher)	27%	33%	100%	100%	100%	100%	
	No. required (RBM / national targets)	**20,150,398**	**27,958,005**	**34,513,064**	**8,202,740**	**22,775,274**	**30,666,878**	124,115,961
	GAP – No. of LLINs	309,398	22,477,225	28,685,064	3,224,740	9,497,274	14,388,878	78,273,181
Insecticide for IRS	Target coverage (national and additional to ITN)		4%	8%	10%	15%	20%	
	No. required (national targets)		1,963,992	6,080,519	7,843,870	12,142,311	16,707,820	45,880,368
	GAP – No. of *sachets* lambda-cyhalothrin		1,678,000	5,794,500	7,557,000	11,856,000	16,707,820	43,593,320
RDTs	National Target (only 5+ yrs public sector)	0%	10%	20%	40%	60%	80%	
	No. required national targets	0	**2,920,572**	**6,028,060**	**11,197,724**	**15,408,069**	**18,551,315**	**54,105,740**
	GAP – No. of RDTs	0	**2,920,572**	**6,028,060**	**11,197,724**	**15,408,069**	**18,551,315**	**54,105,740**
1st line malaria drug	Target coverage national (public)	0	30%	60%	80%	80%	80%	
	No. doses required (RBM / national targets)	13,045,517	40,388,920	83,362,730	97,637,542	79,294,126	62,326,939	363,010,257
	GAP – number of 1st line doses	0	22,038,920	69,362,730	81,937,542	63,594,126	46,626,939	283,560,257
SP for IPT	Target coverage (national)*		36%	50%	65%	70%	75%	
	No. of doses required** (national targets)		7,007,800	9,964,000	13,475,667	14,976,667	16,559,667	66,257,800
	GAP – No. of SP doses		0	0	12,930,279	14,976,667	16,559,667	44,466,612

*combining ANC attendance and absorptive capacity

** including 15% mark-up for women receiving more than 2 doses and 10% logistic mark-up

4. Annexes

4.1. Indicator table

Type of Indicator	Indicator	Baseline			Targets					Comments
		Value	Year	Source	2009	2010	2011	2012	2013	
impact	Death rates associated with Malaria: all-cause under-5 mortality rate'	207/1000 198/1000	2000 2006	DHS/DHS+ UNICEF		176/ 1000			158/ 1000	The assumptions are that malaria is responsible for 30% of all cause under-5 mortality. It has therefore estimated that achieving a 50% reduction in malaria mortality should translate to a 15% reduction in the deaths associated with malaria. The data will be collated through the DHS and the MIS
impact	Incidence of confirmed malaria cases in sentinel demographic surveillance sites per total population of the sites in which the sentinel site is located.	60%	2005	HMIS (MOH routine malaria report and LQAS World bank)		Baseline			30% less baseline	The current HMIS reporting rate is considered to be a significant under reporting. Hence the nearest approximate source of data has been chosen. This proposal also focuses on strengthening the country's HMIS in order to ensure that data on malaria is captured from all levels of care in order to reflect on the true burden of the disease across the country
impact	Malaria parasite prevalence in children under five	38%	2007	Other report, (Special survey conducted by WHO)	38%				at least 50% reduction of baseline	The study was conducted by WHO in limited areas. Further studies are to be conducted during the period of this strategic plan
outcome	% of households with at least one ITN	4.0%	2007	MICS (Multiple Indicator Cluster Survey)	60%	100%	100%	100%	100%	

Type of Indicator	Indicator	Baseline			Targets					Comments
		Value	Year	Source	2009	2010	2011	2012	2013	
outcome	% of households with at least two ITNs	unknown	2007	MICS (Multiple Indicator Cluster Survey)	47%	100%	100%	100%	100%	
outcome	% of children U5 sleeping under an ITN	3.5%	2007	MICS (Multiple Indicator Cluster Survey)	30%	80%	80%	80%	80%	It is expected that in addition to HH distribution of nets, under 5 will receive ITN from other sources such as immunization clinics.
outcome	% of pregnant women (and other target groups) sleeping under an ITN	Unknown	2007	MICS (Multiple Indicator Cluster Survey)	30%	80%	80%	80%	80%	It is expected that in addition to HH distribution of nets, pregnant women will receive ITN from other sources such as ANC clinics.
outcome	% of children five years and above plus adults with malaria/fever receiving appropriate treatment	Unknown	2008	MIS (Malaria Indicator Survey)	5%	30%	50%	70%	80%	
outcome	% of U5 children with fever receiving appropriate treatment within 24hrs (community/health facility)	2.4%	2007	MICS (Multiple Indicator Cluster Survey)	20%	50%	60%	70%	80%	
outcome	% of children five years and above plus adults with malaria/fever receiving a diagnostic test (community/health facility)	unknown	2008	MIS (Malaria Indicator Survey)	10%	20%	40%	60%	80%	
outcome	% of U5 children (and other target groups) admitted with severe malaria and correctly managed at health facilities	unknown	2007	Survey	60%	80%	80%	100%	100%	

Type of Indicator	Indicator	Baseline			Targets					Comments
		Value	Year	Source	2009	2010	2011	2012	2013	
outcome	Case fatality rate (% of malaria deaths among malaria admission)			MIS (Malaria Indicator Survey)		2%				
outcome	% of pregnant women attending ANC who receive SP- IPT 2	Unknown	2007	MICS (Multiple Indicator Cluster Survey)	60%	100%	100%	100%	100%	An intermediate objective here is to target 100% of pregnant women attending ANC. This will translate into 60% of pregnant women by 2010. Effort will be put in place to ensure increased ANC attendance and the delivery of SP-IPT through private clinics.
outcome	% of pregnant women who receive SP- IPT 2	2.9%	2007	MICS (Multiple Indicator Cluster Survey)	50%	60%	70%	75%	80%	When ANC utilization rises to 80%, a 100% coverage of SP-IPT2 of women attending ANC will translate to 80% of total population of pregnant women.
outcome	% of households in malaria areas protected by IRS	2%	2008	IRS records	4%	8%	10%	15%	20%	