REPUBLIC OF GHANA

NATIONAL MALARIA CONTROL PROGRAMME

STRATEGIC PLAN FOR MALARIA CONTROL IN GHANA 2014-2020

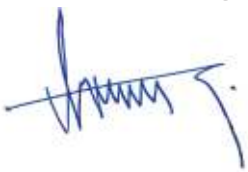
JULY 2014

FOREWORD

Ghana foresees a promismg future with regards to malaria control and the reduction of its burden. The Ministry of Health has worked tirelessly to develop a Strategic Framework that is consistent with Ghana's Vision 2020 of ensuring long healthy and productive life for all as well as reducing incidence of communicable and preventive disease amongst children.We are clearly focused on meeting the challenges of translating strategies into service delivery, a challenge that finally, is beginning to lead to an anticipation and expectation that we are clearly addressing inherent weaknesses in our health system.

Good progress has been made in Ghana. Whereas malaria is the leading cause of morbidity, it is no longer the leading cause of death in the country. There is reduction in malaria case fatality in children under-five years, reduction in deaths attributable to malaria in health facilities, and reduction in deaths among pregnant women. The 2011 Multiple Indicator Cluster Survey (MICS) in children under five years has shown endemicity ranging from hypoendemicity in the Greater Accra Region, hyperendemicity in the Upper West Region and mesoendemicity in the rest of the country. The average parasite prevalence among children under five years is now 27.5%. Despite the progress made, malaria continues to impact negatively on the different demographic and socio-economic groups. For instance, children under five years and pregnant women are known to be relatively more adversely affected. In the past years, the health sector had been faced with some resource constraints, which had adversely affected the full and successful implementation of health interventions to achieve desired objectives. Nevertheless, the increased levels of partnerships in the area of malaria control provide a solid foundation for sound coordination of malaria control within the context of planning and management. In order for impact to be achieved and the gains to be sustained, emphasis will be on the use of proven cost-effective int~rventions coupled with necessary local initiatives that will ensure success.

The success of malaria control is under-pinned in the principles of rapid scale up and expansion of all relevant and proven interventions, universal access to proven and cost-effective interventions, ensuring equity through community-based and gender-based approaches that focus on hard-to-reach communities within ~ strengthened health system.
It is my conviction that this strategic plan will provide guidance towards the achievement of the national malaria goals.



Ms. Sherry Hanny Ayittey
Honourable Minister of Health

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Ministry of Food and Agriculture

Ministry of Education

Ministry of Finance and Economic Planning

Ministry of Health

Ministry of Local Government & Rural Development

Ministry of Environment, Science & Technology

National Development Planning Commission

Noguchi Memorial Institute for Medical Research

National Health Insurance Authority

Professional Associations (GMA, Pharmaceutical Society)

Roll Back Malaria Secretariat; WARN; Harmonisation Working Group

School of Public Health,

UNICEF

USAID PMI Implementing Agencies

WAHO of ECOWAS

World Health Organisation (Ghana, AFRO & Geneva)

World Bank

LIST OF ACRONYMS

ACPR	Acute Clinical and Parasitological Response
ACSM	Advocacy Communication and Social Mobilisation
AGA	Anglogold Ashanti
AGAMal	Anglogold Ashanti Malaria Control Program Ltd
AS-AQ	Artesunate-Amodiaquine
BMC	Budget Management Centre
CBAs	Community Based Agents
CBO	Community Based Organization
CHAG	Christian Health Association of Ghana
CHIM	Centre for Health Information Management
CHO	Community Health Officer
CHPS	Community Health Planning Services
CMS	Central Medical Store
CSIR	Council for Scientific and Industrial Research
DHIMS	District Health Information Management System
DRG	Diagnostic Related Grouping
FAA	Financial Administration Act
FAR	Financial Administration Regulation
FDA	Food and Drugs Authority
G6PD	Glucose-6-Phosphate Dehydrogenase Deficiency
GHS	Ghana Health Services
GNDP	Ghana National Drugs Programme
GSS	Ghana Statistical Service
ICD	Institutional Care Division
ICCM	Integrated Community Case Management
KNUST	Kwame Nkrumah University of Science and Technology
LCS	Licensed Chemical Sellers
MaVCOC	Malaria Vector Control Oversight Committee
MDA	Ministry Departments and Agencies
MOH	Ministry of Health
NDPC	National Development Planning Commission
NHIA	National Health Insurance Authority
NMIMR	Noguchi Memorial Institute of Medical Research
OTSS	Outreach Training and Support Supervision
PMI	President's Malaria Initiative
PPME	Policy Planning Monitoring and Evaluation
STG	Standard Treatment Guidelines
SWAp	Sector Wide Approaches

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EXECUTIVE SUMMARY

This strategic plan consolidates the gains made in malaria control in Ghana in the past ten years. It embarks on accelerated control that concentrates efforts in high transmission areas with the view to further reduce the malaria morbidity and mortality burden by 75% of the 2012 baseline by the year 2020, and to have more low transmission areas. The vision that drives this accelerated control effort is to achieve and sustain near-zero malaria deaths and a malaria-free Ghana. It also falls in line with the Ghana Vision 2020 long-term objective of reducing incidence of communicable diseases and preventable diseases amongst children and ensuring long, healthy, productive life for all individuals

It has been developed to reflect on changing trends in malaria control, the lessons learnt in the past ten years, and on new interventions and strategies. It seeks further to harness the support of a broader range of stakeholders that includes health partners, community members, the research community, academia, multilateral and bilateral partners, International and local NGOs. It defines strategies to be implemented to achieve the goals set for accelerated malaria control in Ghana.

The key intervention areas of this seven-year strategic plan are: Integrated Vector Management; Malaria Case Management including Malaria in Pregnancy, Integrated Community Case Management, Seasonal Malaria Chemoprevention and the Private sector Co-payment Mechanism to expand access to quality assured affordable ACTs and diagnostics. Integrated Support Systems will include Advocacy, Behaviour Change Communication; Procurement, Supply Management; Health Systems Strengthening; Monitoring and Evaluation; Governance and Programme Management; Partnerships and Resource Mobilization.

The Vision, Mission, goals and strategic priorities of the NMCP and the health sector inform the resource mobilization process and activities.

The Goal is to reduce the malaria morbidity and mortality burden by 75% (using 2012 as baseline) by the year 2020. The Objectives and Strategies to attain the objectives are as follows:

Objective 1: To protect at least 80% of the population at risk with effective malaria prevention interventions by 2020

Strategies:

- Distribution of LLINs through mass campaigns
- Continuous distribution of LLIN
- Indoor Residual spraying for areas with high parasite prevalence (MICS 2011)
- Larval Source Management
- Seasonal Malaria Chemoprevention
- Prevention of Prevention of malaria in pregnancy

Objective 2: *To provide appropriate diagnosis to all suspected malaria cases and prompt and effective treatment to 100% of confirmed malaria cases in accordance to treatment guidelines by 2020.*

Strategies:

- Provide quality malaria diagnosis to all suspected cases at all levels
- Build infrastructure and capacity for malaria diagnosis at all levels of care
- Improve access to diagnosis and treatment in the private sector and enforce adherence to guidelines
- Strengthen capacity building for malaria case management at health training institutions and health facilities
- Management of severe malaria at all health facilities
- Increase access of health care delivery to deprived communities where there is no CHPS through the integrated community case management
- Supportive supervision of health workers at all levels

Objective 3: *To strengthen and maintain the capacity for programme management, partnership and coordination to achieve malaria programmatic objectives at all levels of the health care system by 2020*

Strategies

- Conduct regular Regional and national malaria reviews
- Improve capacity for programme management at all levels
- Facilitate biannual Malaria Interagency Coordinating Committee (MICC) meetings
- Facilitate quarterly MICC subcommittee and working group meetings
- Advocate at corporate and parliamentary levels for increase in resource allocation to malaria control activities
- Develop and implement a financing sustainability plan for accelerated malaria control
- Ensure efficient and effective procurement and logistics management
- Align Ghana Malaria NSP into the West Africa Health Organization Strategic Plan for Malaria
- Improve transport and logistics Management Information system for malaria commodities

Objective 4: To strengthen the systems for surveillance and M&E in order to ensure timely availability of quality, consistent and relevant malaria data at all levels by 2020

Strategies

- Conduct Operations Research to inform programme direction
- Enhance routine surveillance

- Ensure enhanced coordinated monitoring of programme progress towards pre-elimination
- Support population based surveys
- Conduct mid and end of term reviews
- Improve malaria data quality
- Disseminate report on surveys and surveillance activities using various channels of communication

Objective 5: To increase awareness and knowledge of the entire population on malaria prevention and control so as to improve uptake and correct use of all interventions by 2020

Strategies

- Advocate for adherence to test treat and track initiative
- Sustain behavioural change communication on malaria prevention at all levels
- Strengthen Community social mobilization to enhance uptake of malaria interventions
- Develop a comprehensive accelerated malaria control communication strategy

Efforts will be made to ensure that the integrity of the Programme and systems are always respected in the process of resource mobilization and utilization.

The newly attained lower-middle income status of Ghana elevates its position among the community of nations but limits the willingness of more developed countries to support malaria control with financial resources.

The NMCP therefore wishes to bring to the attention of all its partners, potential partners and collaborators, the need to mobilize resources (both human and financial) to support the scale up of interventions, sustain gains made in malaria control and build the health system's capacity to remove implementation bottlenecks. This is critical to the success of achieving set targets in this seven-year strategy.

CHAPTER 1: BACKGROUND

1.0 INTRODUCTION

In Ghana malaria occurs everywhere, with varying transmission intensity, throughout the year and affecting people of all ages. The malaria burden is not felt only in the health sector but in every aspect of the social and economic life. The parasite *Plasmodium falciparum* accounts for about 90% of the malaria illness in the country with the principal vectors (mosquitoes) being *Anopheles gambiae and Anopheles funestus.*

Initiatives towards controlling malaria started in the country as far back as the 1950s. Current malaria control efforts led by the National Malaria Control Programme (NMCP) are based on the guidance of W.H.O and the principles of Roll Back Malaria (RBM), which aims to reduce the malaria disease burden until it is no longer of public health significance. To this end, a national strategic plan covering the period 2000-2010 was developed in collaboration with stakeholders to give strategic direction to malaria control in the country. This plan was updated two years earlier than its terminal date in 2008 to include new and effective interventions (*Strategic Plan for Malaria Control in Ghana, 2008-2015).*

The country has made gains in its malaria control efforts as shown in the drop in the overall malaria parasite prevalence from between 51-75% levels (per MARA/ARMA 2002 modelling) to 27.5% in 2011 (MICS 2011*)*. In terms of malaria specific mortality, facility-based malaria-attributable deaths for all ages, reduced from 6,108 in year 2000 to 2,430 in year 2013 (60.2% reduction) whilst under-five malaria case fatality rate, also dropped from 14.4% in 2000 to 0.6 in 2013; this translates to 95.8% reduction (NMCP Annual Report 2013). In addition, all cause under-five years mortality rate has reduced from 111/1000 in 2003 to 82/1000 in 2011. (DHS, 2003; MICS 2011)

These achievements are attributed to the increase in funding support from Government, Global Fund and other Health Partners, leading to implementation of effective, affordable and accessible interventions.
The current strategic plan replaces the 2008-2015 plan and has been developed earlier as a result of:

- The findings of the 2011 Multiple Indicator Cluster Study (MICS); which showed changing trends in the malaria epidemiology in Ghana.
- Recommendations from the 2013, Malaria Program Review (MPR) and
- New and emerging interventions at the global level

Thus, this 2014-2020 strategic plan consolidates the achievements gained in the last ten years and builds on new interventions and strategies with inputs from a broader range of stakeholders including health partners, community members, research community, academia, and NGOs. It defines strategies to be implemented to achieve the goal set for the

Malaria Control Programme in Ghana and guides the NMCP and its partners to re-strategize towards **accelerated malaria control**, with the aim of increasing the malaria-free zones in the country.

The need to mobilize resources to support the scale up of interventions, sustain control, and build health systems capacity to remove implementation bottlenecks is critical to the successful implementation of the interventions under this plan and to achieving set targets.

1.1 THE PROCESS OF DEVELOPING THE NATIONAL STRATEGIC PLAN

The National Malaria Strategic Plan (NSP) 2014-2020, was developed following recommendations from the Malaria Programme Review (MPR) that was conducted in January-June 2013. It was done through a participatory approach using the capacities of multi-stakeholder and multi-sector partner collaborators, institutions and agencies. W.H.O and various in-country resource persons, working on various thematic areas, provided technical support. Plenary sessions were held during the write-up of the plan, and a review mechanism put in place to address associated issues from the plenary sections. Finally, stakeholders' meeting was conducted to share the draft plan for their inputs. The document went through a process of joint assessment (JANS) and review by various external and internal resource persons including members from the Malaria Inter-Agency Coordinating Committee (MICC). Following the JANS, presentation of the findings was made at a Stakeholders' meeting where additional inputs were made. The document further underwent a peer review process under the auspices of RBM/WHO. Finally, another W.H.O consultant worked with the country task team to consolidate all inputs to finalize this plan.

CHAPTER 2: COUNTRY PROFILE

2.1. OVERVIEW

The Republic of Ghana is located centrally on the West African coast and extends inlands from the Gulf of Guinea. It is bordered on the south by the Atlantic Ocean, on the East by Togo, Burkina Faso to the north and La Cote D'Ivoire to the west. The country is bisected by the Greenwich Meridian and lies entirely within the northern tropics between latitudes 4^0 and 12^0N at the equator.

It covers a surface area of 238,537 sq. km and a coastline of 540 km, most of which is relatively flat and lies below an altitude of 150 km, except for a range of hills on the eastern border and Mt. Afadja—the highest point above sea level (884 metres) —which is west of the Volta River.

Ecologically, there are three zones in the country: the Southern zone made up of sandy coastline backed by a coastal plain which is crossed by several rivers and streams; the middle transitional belt made up of heavily forested areas with many streams and rivers; and a northern savannah, which is drained by the Black and White Volta Rivers. The Volta Lake, created as result of the construction of hydroelectric dam in the eastern part of the country is one of the largest artificial lakes in the world (*Fig 1*).

The country has a tropical climate with temperatures and rainfall varying according to distance from the coast and elevation. There are two distinct rainy seasons: April to June and September to October. Annual rainfall ranges from about 1,015 millimetres (40 inches) in the north to about 2,030 millimetres (80 inches) in the southwest *(DHS, 2008).* Northern Ghana has a wet climate from April to October; the rest of the period is hot and dry with temperatures up to 38^0C. In southern Ghana, the rains last from April to June and also from September to October. There are drier months in between these periods. Generally, temperatures are between 21^0C-31^0C in the south *(Ghana Tourist Board website 2012).*

The *harmattan*, a dry desert wind, blows from the northeast between December and March, lowering the humidity and creating very warm days and cool nights in the north. In the south, the effects of the harmattan are felt mainly in January. Average relative humidity ranges from nearly 100% in the south to 65% in the north; during the harmattan season the drier areas can fall as low as 12%.

2.2. SOCIO-POLITICAL SYSTEM

Ghana is a sovereign nation and practises multi-party democracy based on a constitutional arrangement approved by the people in 1992. Currently all the three arms of government are in full operation.

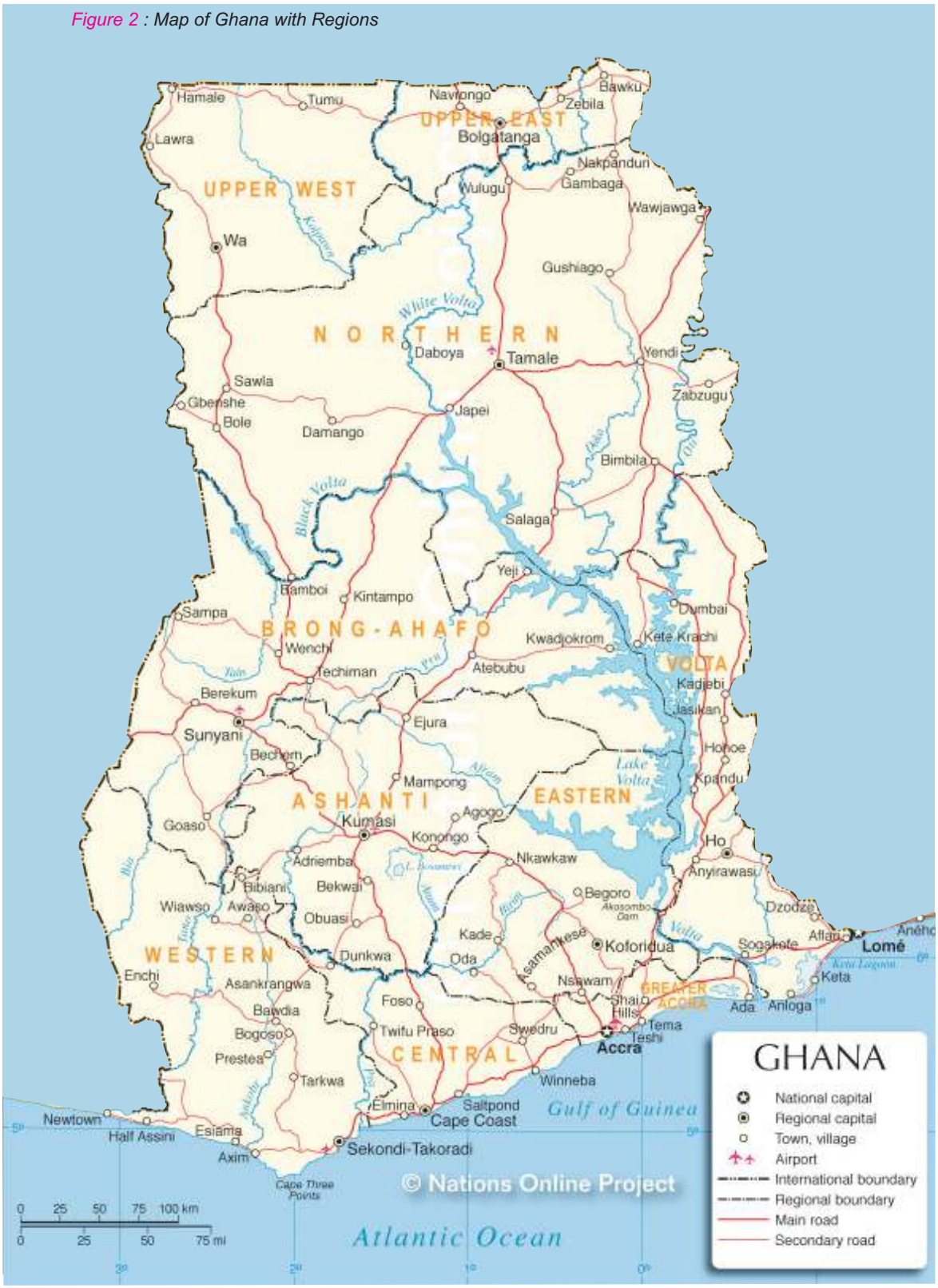
The executive is made up of the President and a Vice President and a constitutionally entrenched cabinet of which the Ministry of Health is part. Parliament comprises of a Speaker, two deputy Speakers and 275 Members of Parliament mandated constitutionally to enact laws for the smooth administration of the country.

Ghana has an independent judiciary headed by the Chief Justice and comprises the lower courts, High Courts, the Court of Appeal and the Supreme Court. In addition, there are specialised courts that deal expeditiously with specific cases. These include fast track High Courts, Human Right Courts and Commercial Courts.

Administratively, the country is divided into ten regions and each region is further divided into districts. The capital city of Ghana is Accra, which is in the Greater-Accra region with a population of 3-4 million (Figure 1&2).

Figure1: Ecological Zones of Ghana

Figure 2 : Map of Ghana with Regions



The ten regions are: Ashanti, Brong-Ahafo, Central, Eastern, Greater-Accra, Northern, Upper- East, Upper-West, Volta and Western. A Regional Minister, nominated by the President and approved by Parliament, heads a region. A Deputy Regional Minister, who is also appointed by President and approved by Parliament, assists the minister. There is a Regional Coordinating Council (RCC) headed by the Regional Minister for each region with the mandate to coordinate and formulate integrated district plans and programmes within the framework of approved national development policies and priorities.

Currently, Ghana has 216 districts with each district headed by a District Chief Executive. Due to on-going development and population increases, new districts are likely to be created.

The District Chief Executive is the representative of the President in the district and is nominated by the President and approved by a District Assembly. The District Assembly is made up of elected and appointed members and it is the highest political and administrative authority in the district.

2.3. DEMOGRAPHIC CHARACTERISTICS

Ghana's population as at 2013 was 26,594,183 projected from 2010 Population Census, using growth rate of 2.4% *(GSS, 2010).* Out of this, 28.5% live in the highest malaria transmission areas. The population density per square kilometre is 79 persons per sq. km in 2013. Table 1 gives details on Ghana's demography.

Table1: Ghana's Demographic Characteristics

Age structure	0-14 years: 38.9% 15-24 years: 18.9% 25-54 years: 33.5% 55-64 years: 4.6% 65 years and over: 4%
Birth rate	32 births/1,000 population
Death rate	7.7 deaths/1,000 population
Infant mortality rate	Total: 40.9 deaths/1,000 live births male: 45.1 deaths/1,000 live births female: 36.7 deaths/1,000 live births
Maternal Mortality	350 deaths/100,000 live births
Life expectancy at Birth	Total population: 61.45 years male: 60.22 years female: 62.73 years
Total Fertility rate	4.15 children born/woman
Literacy (those aged 15 and above; can read and write)	Total population: 71.5%; male: 78.3%; female: 65.3%
Health expenditure	7.8% of GDP (2013)
Physician density	85 physicians/1,000,000 population (2009)
Net Migration rate	56 migrant(s)/1,00,000 population
Urbanization	Urban population: 51% of total population (2010) rate of urbanization: 3.4% annual rate of change (2010-15 est.)

2.4. ECOSYSTEM, ENVIRONMENT AND CLIMATE

Environmental factors such as land cover, vegetation (savannah, tropical forest, and mangrove, and swampy areas), coupled with average annual temperatures of 26^{0}C and rainfall ranging from 100mm to 2800mm all contribute to the risk of contracting malaria. The climate, rainfall pattern and tropical conditions have made malaria perennial in Ghana.

The micro-geographical and seasonal variations in mosquito biting rate and the level of malaria transmission observed in many areas have shown that malaria transmission is heterogeneous in Ghana. Average infective bite an individual will receive from a mosquito at night, ranges from 418 in the Northern part of the country to about 20 in the South. The intensity of transmission is highest in northern zone, followed by middle zone and least in the southern zone per entomological inoculation rate estimates.

The altitude ranges from 0-750m above sea level and these create favourable conditions for the mosquito vectors *(Anopheles gambiae, An. arabiensis, An. funestus)* to breed and transmit the disease and significantly increase the malaria risk in Ghana.

2.5. SOCIO-ECONOMIC SITUATION

There have been major changes to the country's economy in the past decade. In 2010 following rebasing of the Ghanaian economy, Ghana became a lower middle-income country. The performance of the economy has substantially improved as Ghana continues to experience macroeconomic stability, indicated by the prudent fiscal and macroeconomic management put in place by the government. This has been accompanied by accelerated economic growth, with real GDP growth rate at 7.8% in 2013 *(www.tradingeconomics.com/ghana/gdp).*

Ghana's main exports include cocoa, timber, pineapple, with gold as one of its principal revenue source. The recent discovery of oil reserves in the country will boost the economy with a new source of revenue. Ghana started exporting oil in commercial quantities, at approximately 70,000 barrels every year since 2009.

The liberalization of the media in Ghana has provided opportunities for the use of various media to disseminate behaviour change communication information, and provided the platform for engaging civil society on issues of health. In certain instances, social arrangements and cultural practices have hindered women's ability to make choices that enhance their health.

2.6 HEALTH SYSTEM ANALYSIS

2.6.1. Ministry of Health Commitment and Structures

The Government of Ghana is committed to improving the quality of life of all people living in Ghana. This is reflected in the health sector **mission** that seeks to contribute to socio-economic development and wealth creation by promoting health and vitality, ensuring access to quality health, population and nutrition services for all people living in Ghana and promoting the development of a local health industry.

The ultimate **goal** of the sector is to ensure a healthy and productive population that reproduces itself safely by ensuring an increased life expectancy, people live healthy and productive lives and reproduce without an increased risk of injury or death; reducing the excessive risk and burden of morbidity, mortality and disability, especially in the poor and marginalized groups and reducing inequalities in access to health. These are currently captured in the ministry's five strategic objectives to:

- HO1: Bridge the equity gaps in infrastructure, human resource, and financial access to health care and nutrition services and ensure sustainable financing arrangements that protect the poor
- HO2: Improve governance and ensure efficiency and effectiveness in health systems
- HO3: Improve access to quality maternal, neonatal, child and adolescent services
- HO4: Intensify prevention and control of non-communicable and communicable diseases and promote healthy lifestyle
- HO5: Strengthen institutional care including mental Health service delivery (MOH 2010 SMTDP)

2.6.1.1. Ghana's Commitment to the Abuja Declarations and international resolutions

Ghana in the year 2000, participated in the African Development Forum in Abuja and signed and implemented the Abuja Declaration on HIV/AIDS, TB, Malaria and other Infectious Diseases, extended in 2006 to 2015. Since then Government's budgetary allocation for the health sector has been 15.7% in 2012, 14.1% in 2013 and 14.6% earmarked for 2014.

There have also been several initiatives in the Government's development agenda to address inequities in access to health care. One such initiative is the Highly Indebted Poor Countries (HIPC) initiative in 2004, which targeted the poor and vulnerable groups. This made provision for subsidies and exemptions for essential health services (including malaria), towards ensuring universal access to prevention and treatment. In addition, the Government of Ghana is also scaling up the Community Health Planning Service (CHPS) strategy which involves placing trained community health officers (CHOs) in communities to provide a package of essential health services, including malaria prevention and treatment.

2.6.1.2. The National Health Policy

The health sector in 1996 was restructured through the Ghana Health Service and Teaching Hospitals Act, 1996, Act 525 to create the Ghana Health Service (GHS) and grant autonomy to the Teaching Hospitals. The Act also refocused the functions of the Ministry of Health (MoH) on the provision of leadership, and policy formulation and coordination for the whole health sector. The Ghana Health Service is responsible for health care delivery whilst the Teaching hospitals are for tertiary care. The MoH carries out its policy formulation function in consultation with the National Development Planning Commission (NDPC) and in partnership with development partners, its agencies, research and other relevant institutions. Policies developed through this collaborative process are usually informed by the outcomes of sector performance reviews, research findings and technical support provided by health partners. The health sector is currently implementing the 2010-2013 health sector medium term development plan and a 2014-2018 draft has been developed.

In 2012, the Public Health Act 2012, ACT 851 was passed to give direction to, and to facilitate the implementation of essential public health interventions. The Act has nine parts; part four is on vector control and mandates District Assemblies to establish a vector control team for the purpose of the control of vectors of public health importance, including mosquitoes. It also prohibits owners of premises from allowing the presence of mosquito larvae in receptacles.

There is a National Health Insurance Scheme under the National Health Insurance Act 2012, Act 852 that reimburses the cost of healthcare services in health facilities.

2.6.1.3. Sector-Wide Approach (SWAp) in Ghana

As part of the process of integrated planning and financing of the health sector, Ghana adopted a sector-Wide Approach (SWAp) which involved joint planning with a common fund "basket" which has been reformed into a sector budget support system where health partners support the health sector programme of work through central government budget, whilst others continue to provide direct support to the Programmes. Current management arrangements still allow for joint planning and reviews making use of sector-wide indicators.

2.6.2. Health Care System Organization

The Health sector in Ghana is public and private. Ghana Health Service and Teaching Hospitals run the public sector. The private sector is made up of faith-based and private-for-profit health institutions. The current health sector organisation provides for leadership at the ministerial level and supported by the following implementing agencies:

- Service delivery (Teaching hospitals, Ghana Health Service, Psychiatric hospitals, Ambulance Service, Blood Service, CHAG, Herbal Clinics, private health facilities)
- Health training and research institutions

- National Health Insurance Authority
- Regulatory bodies.

Health Service delivery is along a three-tier delivery system: primary, secondary and tertiary. The primary level is where a Medical Doctor heads a district hospital and a Physician Assistant is in charge of health centres. Community Health Planning & Services (CHPS) zones are in sub-districts, and in these areas Community Health Officers (CHOs) work with community volunteers to increase access to health care. A typical district with a population of about 100,000 has one hospital, 5 health centres and 10-15 CHPS zones. The leader of the district is the District Director of Health Services who works with a District Health management Team and reports administratively to the District Chief Executive (Political Head) and technically to the Regional Director of Health Services.

The regional hospital forms the secondary level of the health care system taking care of referrals from the primary level. At this level, general practitioners and specialists provide services. . There are ten regional hospitals receiving referrals from districts and providing specialist outreach support to districts in Ghana. The Regional Director of Health Services oversees all matters of health in the region, works with a team and reports administratively to the Regional Minister (Political Head) and technically to the Director-General of the Ghana Health Service who in turn, reports to the Minister of Health through the GHS Council.

The tertiary level of health care is currently manned by three teaching hospitals, which provide specialist care as well training of doctors. The Chief Executives of these teaching hospitals report to the Minister of Health through their Boards.

The health sector has adopted an integrated approach to delivery of health interventions. Preventive care, clinical care and emergency services are all important aspects of health service delivery system. As part of the approach, public health interventions are packaged and delivered in communities as part of CHPS and outreaches, in health facilities and at district, regional, and national levels.

There are multi-purpose disease control technical officers at district and regional levels that ensure integrated health service delivery. These officers report to their respective district and regional directors of Health. At the sub-district and CHPS compounds, disease control technical officers, field technicians, community health nurses, midwives and medical assistants carry out malaria control activities as part of their schedule of work.

A Traditional Medicine department has been created within the sector and has functions including: setting of standards, issuing of certificate of registration to qualified practitioners and licensing of their premises. It also collaborates with international bodies such as UNIDO.

The private health sector also plays a very important role in the health service delivery including implementation of strategies for malaria control. The program engages them in all its activities as well.

2.6.3 Human Resource in the Health Sector

The Ghana National Health Policy captioned "Creating Wealth through Health", considers human resource as all human capacity involved in developing, providing, managing or supporting curative, preventive and rehabilitative health, both in-country and externally, who directly or indirectly influence health development [MOH 2007; National Health Policy 2007]. In the light of this, human resources for malaria control programme management will be examined at the national, regional, and district, facility and community levels.

As at June 2013, the total workforce in the public health sector was 42,000 working in 2205 health facilities. These facilities are made up of 321 hospitals, 760 health centres and 1124 clinics. There are 2,007 highly trained doctors (10,000 populations per 1), 12,763 nurses (10,000 population per 6), 1321 pharmacists and 381 allied health professionals currently working in Ghana.

A Programme Manager, who is assisted by a Deputy Program Manager, heads the NMCP. There is one Entomologist at the national level. In addition there are focal persons for specific technical areas such as malaria case management, malaria in pregnancy, procurement supply management, behaviour change communication, partnerships, private sector and resource mobilization, monitoring and evaluation. The Programme has a team of administrative staff consisting of an administrator, secretaries, finance officers and drivers. All the Technical Staff have undergone further training in either the WHO's International Course on Malaria and Planning its Control or the CDC/Emory University's International Course in Applied Epidemiology.

A section of the NMCP staff are permanent employees of the Ghana Health Service while a section were recruited under the Global Fund Grant to support programme implementation at the regional level and are therefore not on the government pay roll. Four of the technical staff and six administrative staff are not permanent employees of the GHS. The NMCP's Strategic Plan explicitly states this situation as unsustainable and admits it to be a concern. *(National Malaria Strategic Plan, 2008-2015)*. At the regional and district levels malaria control is integrated into the broad health service delivery system.

At the community level, Community Health Planning Services (CHPS) exist to provide basic health care including malaria case management. In communities, where CHPS is not present, Community-Based Agents or Volunteers are trained to take care of malaria, pneumonia and diarrhoea.

The capacity of the staff at lower levels, especially CHPS zones, to execute malaria control activities is limited and the system is not optimally utilizing the potentials of the CHPS concept for scaling up malaria control interventions.

2.6.4 Health Management Information System

The Health Sector has an integrated monitoring and evaluation plan out of which Ghana Health Service (GHS) has developed its monitoring and evaluation framework. The tracking of health indicators and performance in the country is through the use of routine health information system, supervisory visits and review meetings.

The Health Sector developed and successfully deployed the District Health Information Management System (DHIMS) software in 2008 to facilitate the management of integrated routine service data for decision-making. The DHIMS is a web-based system centrally hosted by the Central Health Information Management (CHIM) centre, which is a unit within PPME. In 2012, the established DHIMS was improved and upgraded to DHIMS2. This provides a platform for managing health service data nationwide across all service delivery points. This includes data from public, some private, faith-based and quasi-government health facilities. (*Malaria Monitoring and Evaluation Plan 2014-2020).*

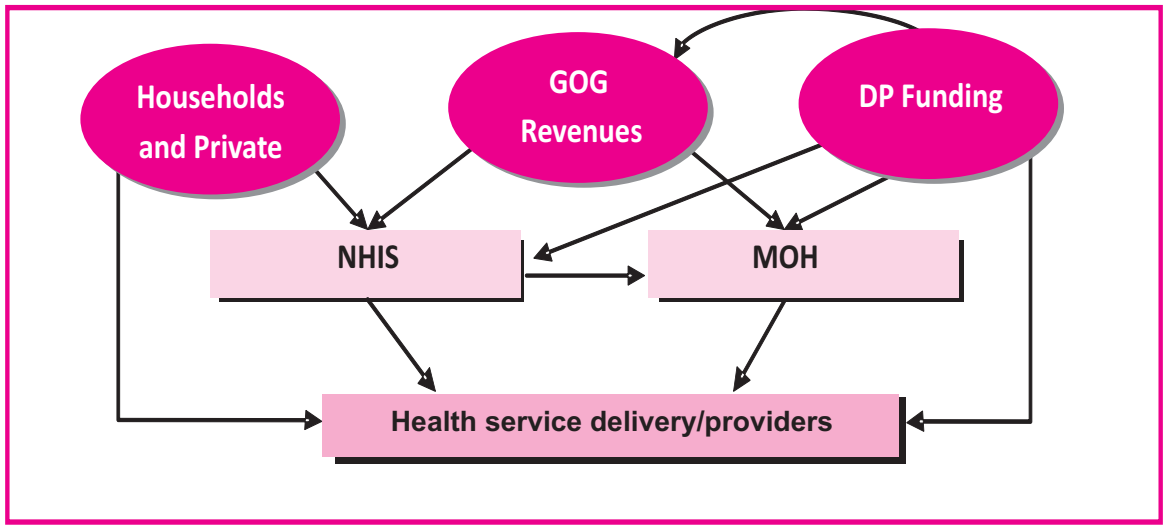
2.6.5 Health Sector Financial Management

The Financial Administration Act 2003, Act 654 (FAA) and its regulations (FAR, 2004) and the Accounting Treasury and Financial Reporting Rules and Instructions (ATF) are the key documents that guide accountability of funds received and managed in the Sector. Project Agreement and Grant agreement documents are also complied with in the custody, disbursement, accounting and reporting for funds. They provide regulations and guidance on how public funds should be managed including revenue receipts, expenditure, records, auditing.

2.6.5.1. Funding the Health Sector

The three main sources of finance for the health sector in Ghana are: the public sector, development partners (DPs), and the private sector, including households. These are channelled to the sector through a variety of different mechanisms as summarised in *Figure 3.*

Figure 3: Flow of major funding sources within the Ghana health sector



***Source:* MTHS, MOH, 2010-2013**

The NHIF is funded by a combination of sources. These include a 2.5% additional National Health Insurance Levy (NHIL) on domestic and imported goods and services, and a 2.5% contribution from the Social Security National Insurance Trust (SSNIT) contributions of formal sector employees. About 70% of NHIS total membership is constituted by those who are exempted from premium payment, including those aged 70 years and above, children under 18 years and pregnant women

Development partners provide funding to support the health sector. There has been the evolution of the Sector-Wide Approach, and the move towards increased use of government systems as agreed under the Paris Declaration and re-affirmed in the Accra Agenda for Action. Consequently, partners who earlier supported the MoH Health Fund, have moved either to Multi-Donor Budget Support (i.e. in general support of the GOG) or to Sector Budget Support (SBS) which is channelled to the MoH through Ministry of Finance and Economic Planning (MOFEP). In addition, a significant number of Development Partners provide earmarked funding for specific activities. These include both bilateral and multilateral partners, as well as international Health Initiatives such as the Global Fund for AIDS, Tuberculosis and Malaria (GFATM) and the Global Alliance for Vaccines and Immunisations (GAVI). Earmarked partners provide a combination of grants and loan funding, and the range of partners is expanding to include bilateral arrangements with countries such as Kuwait and China, and partnerships between governments and financing institutions, particularly for infrastructure projects.

The health sector has relied on Internally Generated Funds (IGF) to supplement other sources for over a quarter of a century, and has been granted dispensation from the requirement to submit all such revenues back to the treasury as a means of improving service provision. With the advent of the NHIS, the level of IGF funding (as reported by facilities) has increased significantly over the period under review. However, distinction must be made between direct household contributions as "Cash & Carry" or user fees, which

are a net addition to the sector resource envelope, and the NHIS claims revenues which are funded primarily through the statutory budgetary allocation to the NHIF, supplemented to a limited extent through premium contributions of informal sector employees.

2.6.5.2. Accounting and Reporting

All accounting and reporting procedures of the Ministry of Health are generally guided by the financial administrative Act, 2003 (Act 654), financial administration regulation, 2004, (L.I.1802) and accounting, treasury and financial reporting rules and instructions.

National Malaria Control Programme, as part of the Ministry of Health, also adheres to the rules and guidelines governing accounting and reporting as per the above-mentioned regulatory Acts.

In all Ghana Health Service facilities, authorized bank accounts are opened in line with the Financial Administration Act 2003, Act 654 (FAA). All funds received are lodged into the designated bank account(s) and disbursed from these accounts. All disbursements are approved by the head of department and authorized by the head of finance. Authorization involves checking to ensure there is a budget available for the activity and whether the budget is approved. Authorization also involves checking to ensure that the activity has been performed according to specification and that all details on the payment documents are accurate.

In most cases payment vouchers are pre-audited by internal auditors before the cheques are written. Program activity budget ledgers are maintained to track the movement of funds on key programs and activities. In most cases, activities in the Program activity ledgers are pooled on broad disease burden basis and so it is cumbersome to decipher program activity balances by a specific donor.

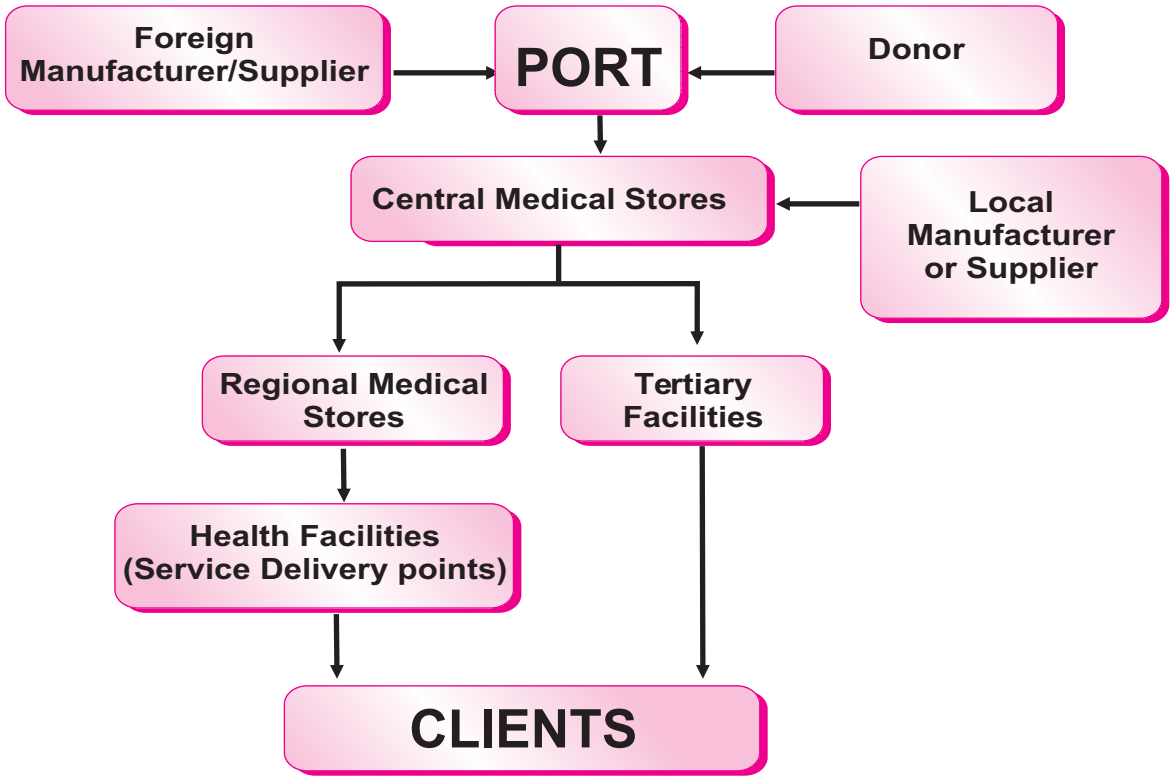
Global Fund grants, however, have separate accounts, which is managed to align with government accounting mechanisms. USAID uses a different accounting system in line with the US government policies as per the bilateral agreement.

2.6.5.3. Procurement and Supplies Management

The Public Procurement Act, 2003, Act 663, that defines the structures, system, rules and procedures of procurement in the public sector, guides Ghana's procurement and supplies management. It also defines the various procurement methods, review of activities, procurement thresholds, mandatory bodies to be established and guidelines for disposal of unserviceable stores commodities and equipment. Malaria commodities are registered and regulated in accordance with the Public Health Act 2012, Act 851, Parts 6, 7 and 8.

Ghana's public sector has a comprehensive integrated supply system, which is served by a Central Medical Store (CMS) and ten (10) Regional Medical Stores (RMS). The flow of malaria commodities from the central level to the service delivery points in the public sector follows a 3- tier system as shown in *Figure 4.*

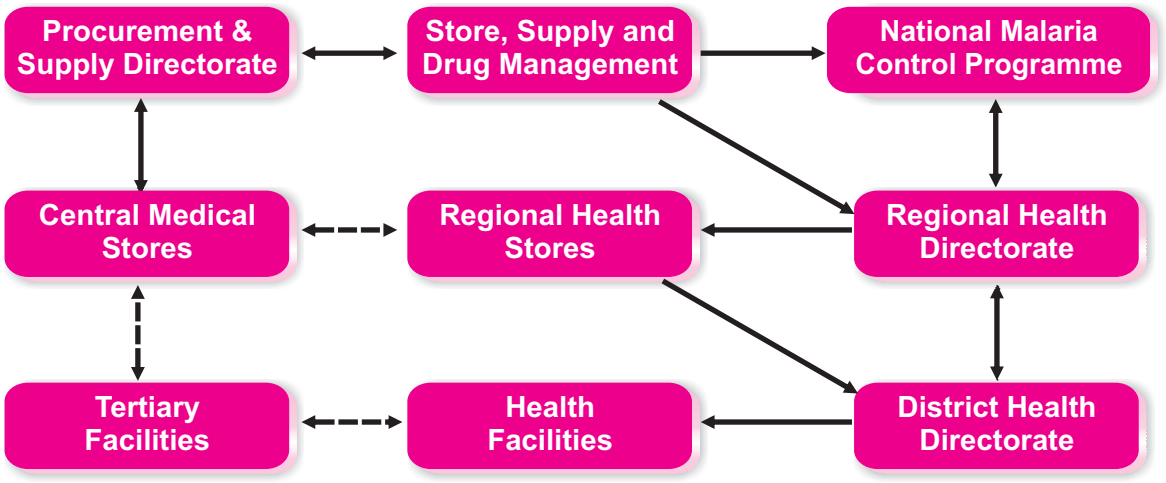
Figure 4: Ghana Public Sector Commodity Pipeline



Source: ***NMCP PSM Plan, 2010***

Lower level health facilities, especially the health centres and CHPS compounds rely on the District Health Administration for the transportation of their commodities. Information on consumption, stock balances and others also flow from the service delivery through the districts, regions then to the central level as depicted by *Figure 5.*

Figure 5: ***Reporting Pathways in the Public Health Sector***



Source: ***NMCP PSM Plan, 2010***

The private sector supply system follows a different pattern from the public sector. The Private sector key players are mainly manufacturers, importers, company representatives or wholesalers and retailers. Some of them play multiple roles such as manufacturing, importation and wholesale or even retail activities.

Importations of those commodities attract the applicable taxes and tariffs unless specific applications are made through the Ministry of Health to the Ministry of Trade and industry for a tax waiver of any kind that may be applicable at the time (MPR, 2013).

The main issue that needs to be addressed is the lack of a robust standardized logistic management information system across all levels to allow us use consumption data instead of morbidity data.

CHAPTER 3: MALARIA SITUATION ANALYSIS

3.1. EPIDEMIOLOGY

3.1.1. Malaria parasites

The main parasite species causing malaria in Ghana are *Plasmodium falciparum* (80-90%), P. *malariae* (20-36%), and *P. ovale* (0.15%). *P. vivax* has not yet been seen on blood films in Ghana. Mixed infections of *P. falciparum* and *P. malariae* are not uncommon. Crude parasite rates range from 10 % to 70%.

3.1.2. Malaria vectors

Anopheles gambiae s.l. and *An. funestus* have been identified as the major vectors of malaria in all the ecological zones of the Northern Savannah, Middle transitional and in the Southern zone**. They** account for about 95% of all catches. *Anopheles gambiae* s.s. of the complex predominates and transcends across the country. *Anopheles arabiensis* has been found in the Sahel zone but in fewer numbers. *Anopheles melas* also exists but in small proportions, in areas with brackish water along the south-western coast, typically, in mangrove swamps. Characteristically, these species are highly anthropophilic, biting mostly late in the night, and are commonly found in the rural and peri-urban areas where socio-economic activities lead to the creation of conducive breeding sites.

3.1.3. Population exposed and vulnerable Groups

It is estimated that all the population are at risk of having malaria but children, pregnant women, people with sickle cell, HIV and non-immunes are the most vulnerable. Prevalence is much higher among children in families of lower wealth quintiles and less educated mothers as well as those living in rural areas and in urban slums.

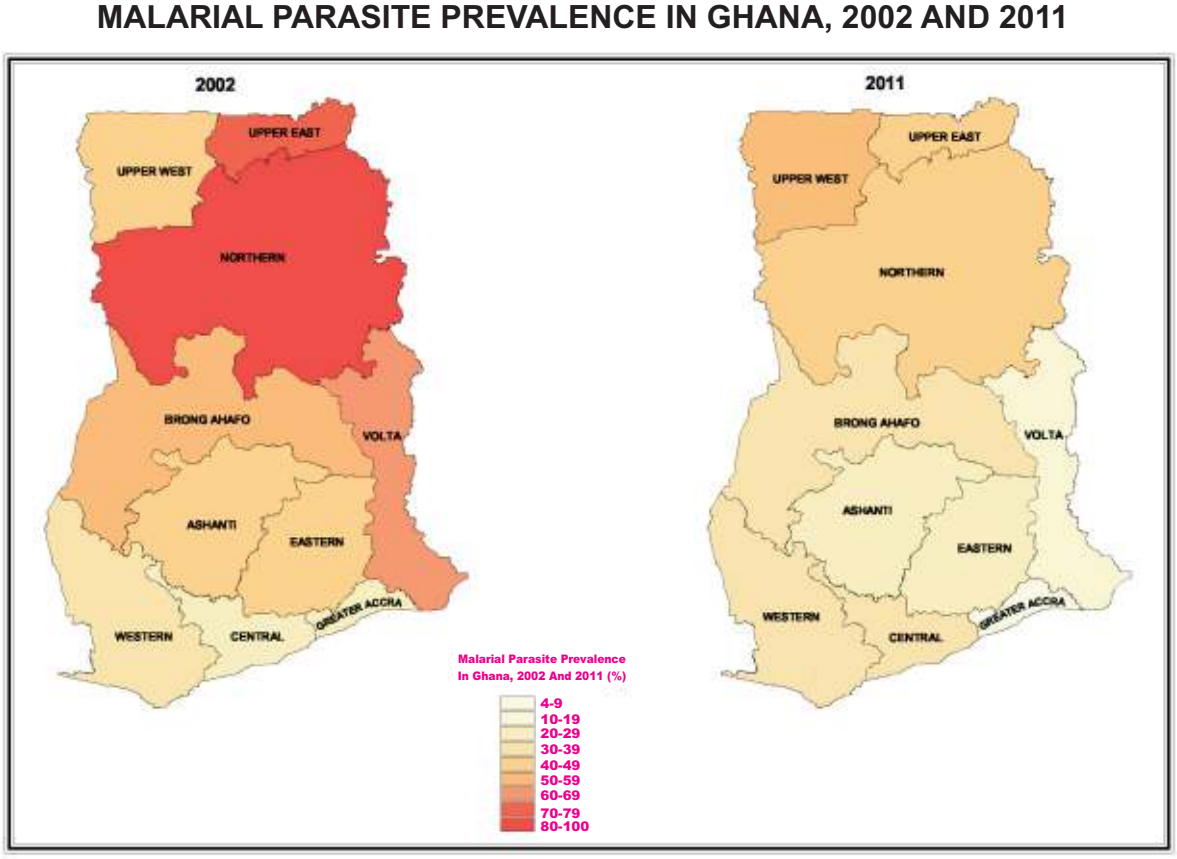
3.1.4. Dynamics of malaria transmission and level of endemicity

The results from the 2011 Multiple Indicator Cluster Survey (MICS) showed that parasite prevalence in children under five years ranges from a low 4% (in Greater Accra region) to the highest figure of 51% (in Upper West region). With parasite prevalence of 39%, rural Ghana shoulders three times as much burden compared to urban settings (13%). When compared with the MARA/ARMA modelling of 2002, there appears to be reduction in malaria parasite prevalence *(Figure 6).*

However, absence of prior population-based national surveys that measured parasite prevalence makes assessment of epidemiological trends difficult. In view of the rapid urbanisation and possible effect of climate change, there is the need to monitor parasite prevalence and malaria transmission on a continuous basis to the district level.

Environmental factors such as land cover of vegetation (savannah, tropical forest, and mangrove) and swampy areas, rainfall patterns with rain fall also ranging from 100mm to 2800mm and average annual temperatures of 26°C all affect risk of getting the disease. The micro-geographical and seasonal variations in the biting and the level of malaria transmission observed in many areas showed that malaria transmission is heterogeneous in Ghana. The Entomological Inoculation Rate (EIR; a measure of the average infective bite an individual will receive from a mosquito in the night), ranges from 418 in the Northern part of the country to about 20 in the Southern part.

Figure 6: Malaria Prevalence in Children 6-59 Months, by Regions: MARA/ARMA MODELLING (2002), AND MICS 2011

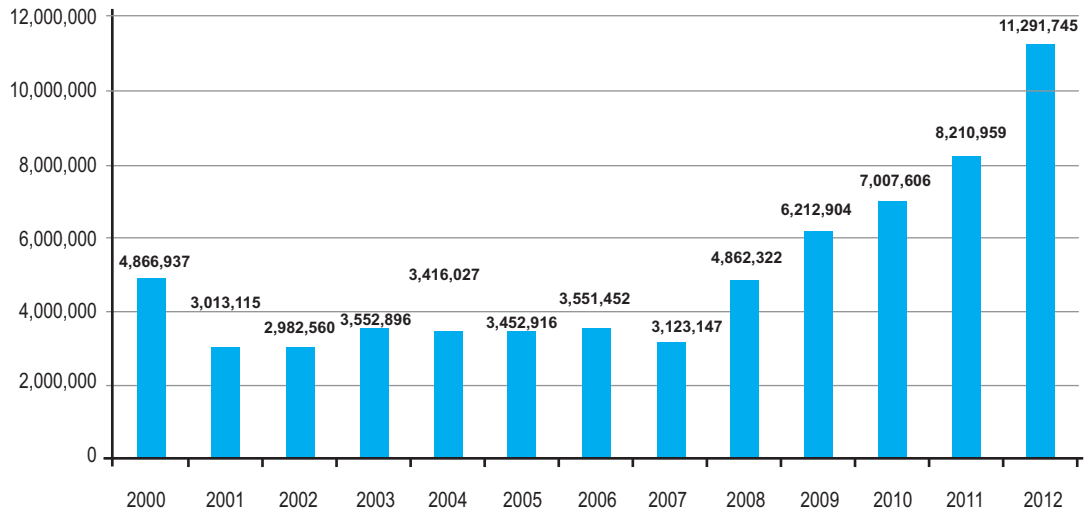


3.1.5. Morbidity and mortality

Malaria Morbidity/Malaria Burden (HMIS)

Reports from health facilities captured in the routine Health Management Information System (HMIS) indicate an increasing trend in number of the total Out Patient Department (OPD) malaria cases. The OPD malaria cases per 1000 population showed an increase from 250 cases in year 2000 to about 437 cases per 1000 population in 2012 *(Figure 7).* This increase can be attributed to a number of factors including improved data capture (DHIMS), improved financial access (National Health Insurance Scheme) and geographical access (CHPS) to health care and increasing presumptive diagnosis of the disease. The National Health Insurance Scheme (NHIS), which started operation in 2005, had coverage of 34% nationwide in 2012. CHPS was introduced in year 2005 and the coverage has increased over time: from 37.5% (868 centres out of the planned 2316) in 2009 it has increased to 2,314 (99.9%) in 2013. However, only 1,991 CHPS are functional.

***Figure 7:* Total Malaria OPD Cases 2000-2012**

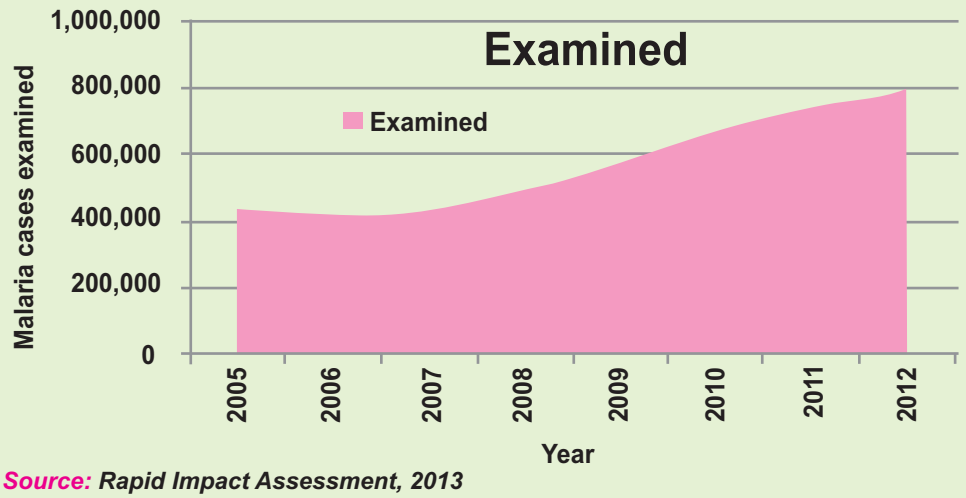


***Source:* NMCP/GHS report, 2012.**

The testing rates of suspected malaria cases in the country stagnated from 2005 to 2007 but saw a steady increase from 18% in 2007 to 35% in 2012 (*Figure 8).*

There is however the need to improve this in line with the WHO strategy of Test, Treat and Track.

Figure 8: Malaria Cases Examined (Tested Microscopically) In All Ages: 2005-2012

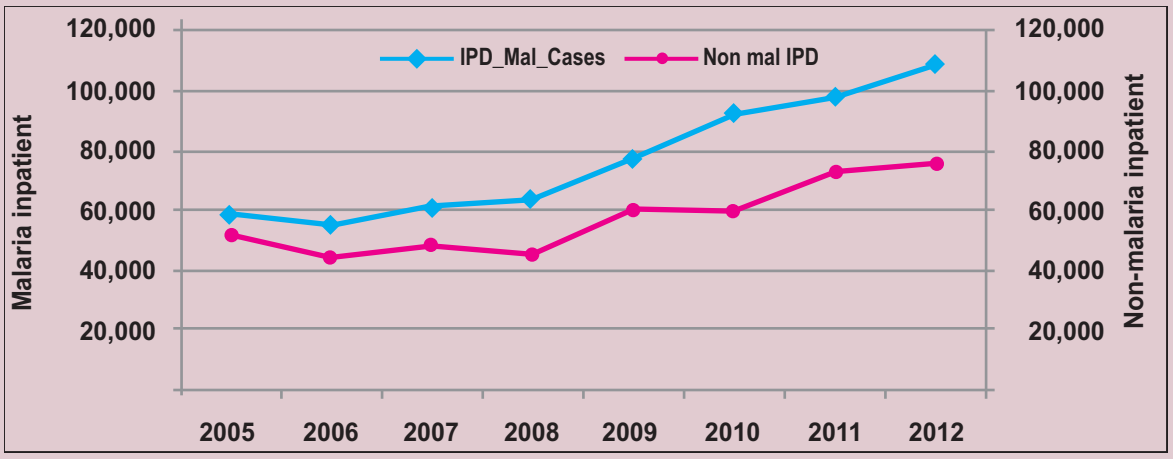


Source: Rapid Impact Assessment, 2013

Admissions due to Malaria

The proportion of in-patients admitted with malaria for the various target groups appear to be increasing *(Figure 9).* There was a sharp increase in admissions in children under five years from 2007, which coincides with the introduction of the Diagnosis Related Grouping (DRG) payment mechanism under the National Health Insurance Scheme (NHIS) in the same year.

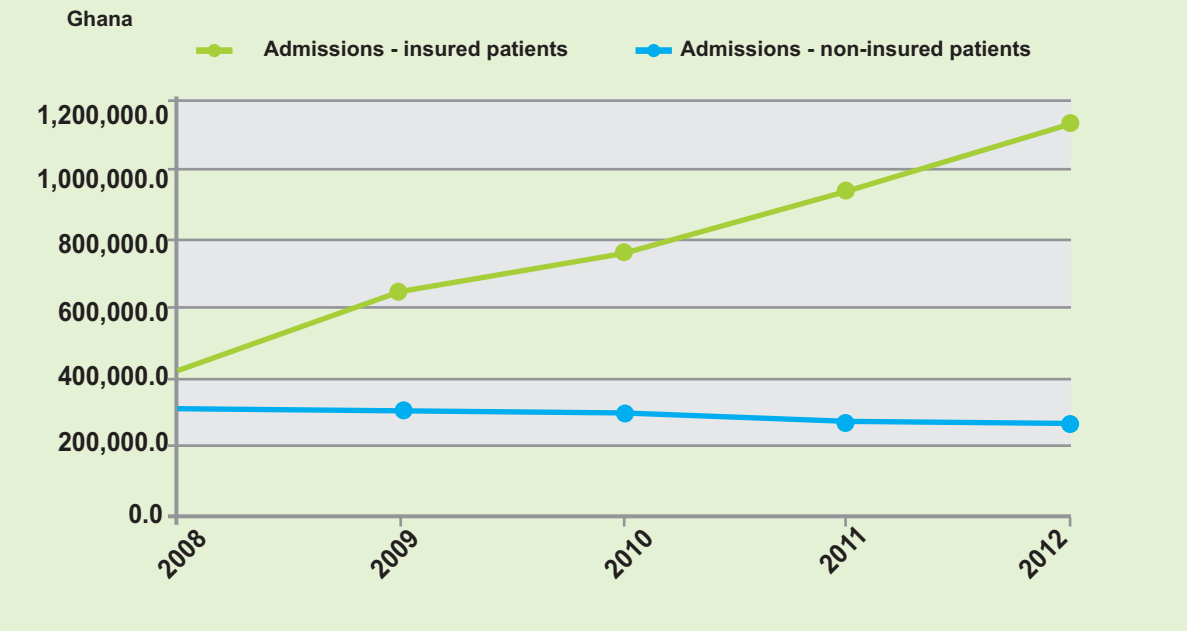
Figure 9: Inpatient malaria cases compared with non-malaria In-patient cases in Ghana; Children <5 years (2005-2012)



Source: Rapid Impact Assessment, 2013

The DRG payment mechanism for malaria treatment is significantly higher when patients are admitted than when they are treated as outpatients increasing the likelihood of an insured patient being admitted for malaria as compared the non-insured. Figure 10 shows a consistent increase in admission of insured patients from 2008-2012 compared with non-insured patients, over same period (HMIS/MPR 2013).

Figure 10: Insured and Non-Insured Malaria Cases By Target Groups (2008-2012)

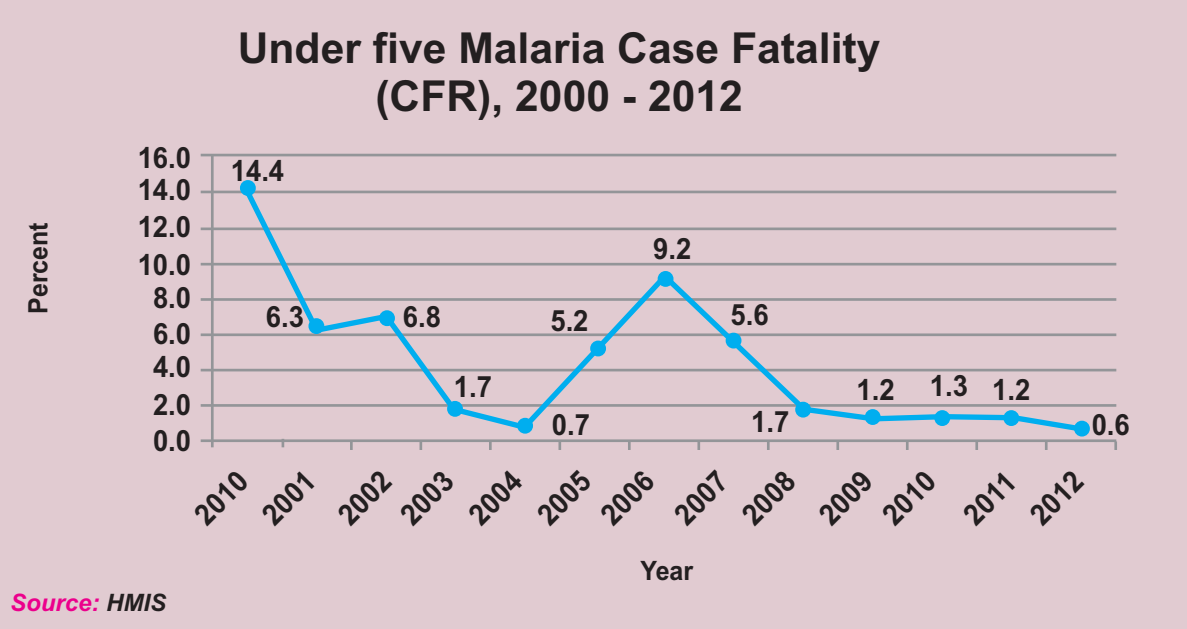


Source: HMIS 2013/MPR 2013

Malaria Mortality

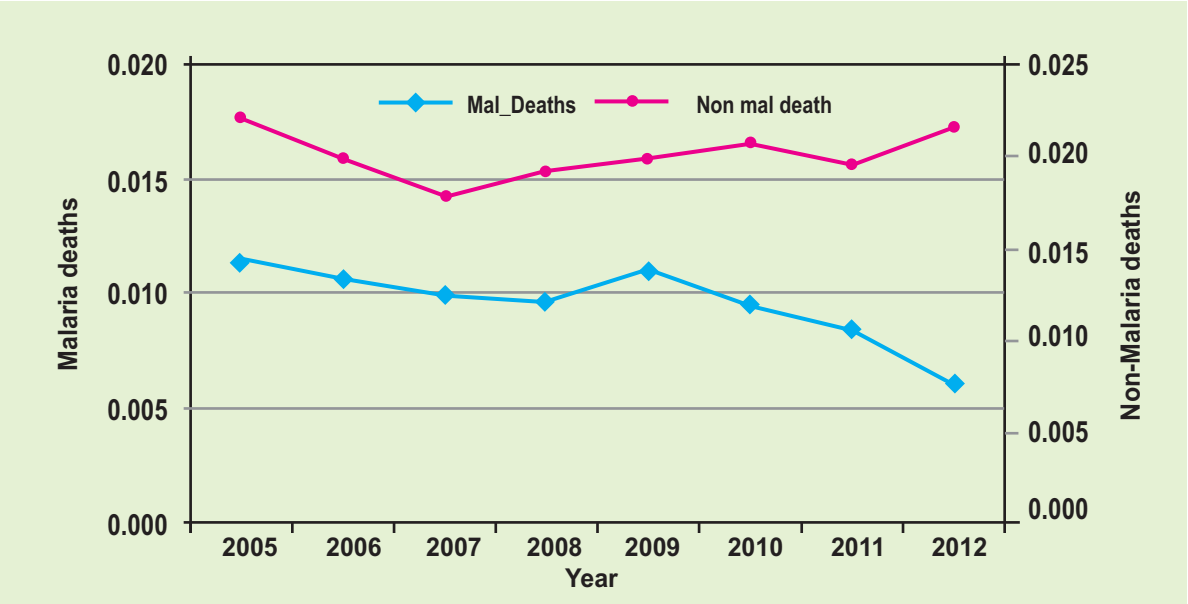
There is a consistent reduction in institutional deaths due to malaria, with under-five malaria Case Fatality Rate (CFR) decreasing from 14.4% in year 2000 to 0.6% in 2012 (Figure 11). In contrast, deaths due to non-malaria did not reduce (Figure 12&13). This is a good reflection of an improvement in the case management of malaria as well as the impact of all the malaria control interventions that have been on-going in country.

Figure 11: Under-Five Malaria Case Fatality (2000-2012)



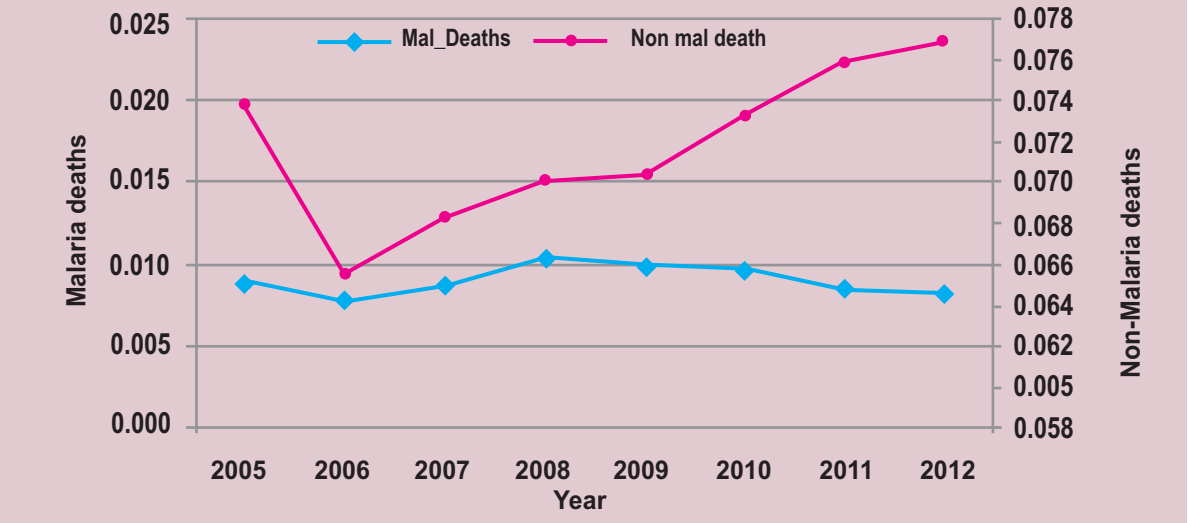
Source: HMIS

Figure 12: Malaria deaths vs. non-malaria deaths per 1000 for Children under Five Years (2005-2012)



***Source:** Rapid Impact Assessment (RIA), June 2013*

Figure 13: Malaria deaths vs. non-malaria deaths per 1000 In Children Above five Years (2005-2012)

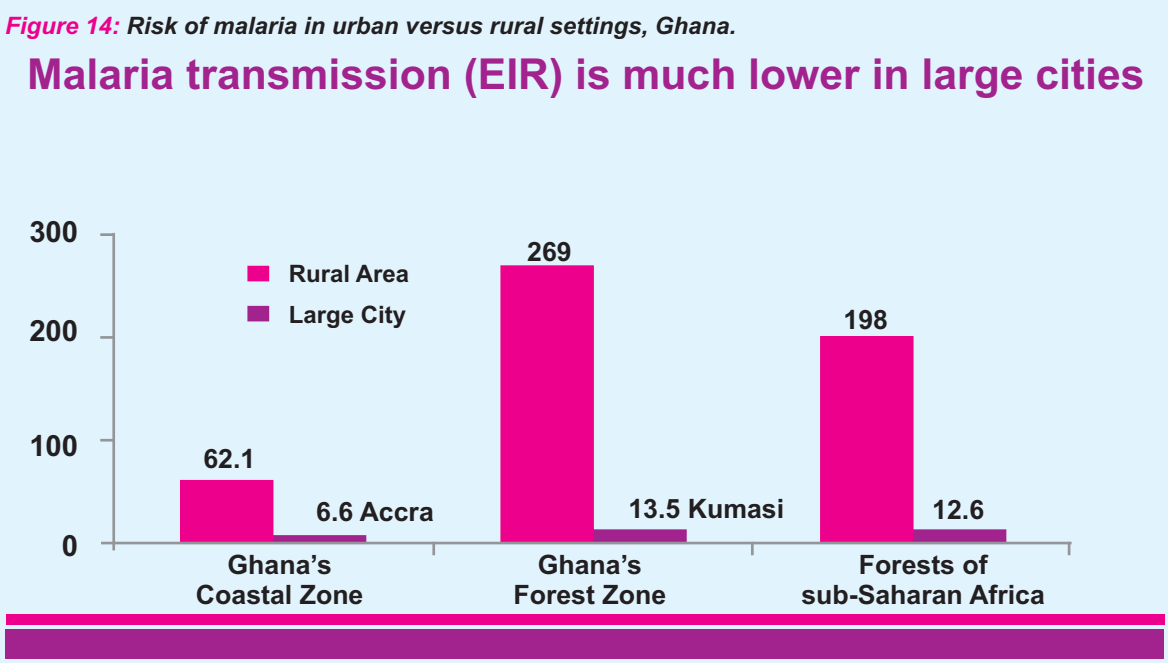


***Source:** Rapid Impact Assessment (RIA), 2013*

3.1.6. Malaria stratification and mapping

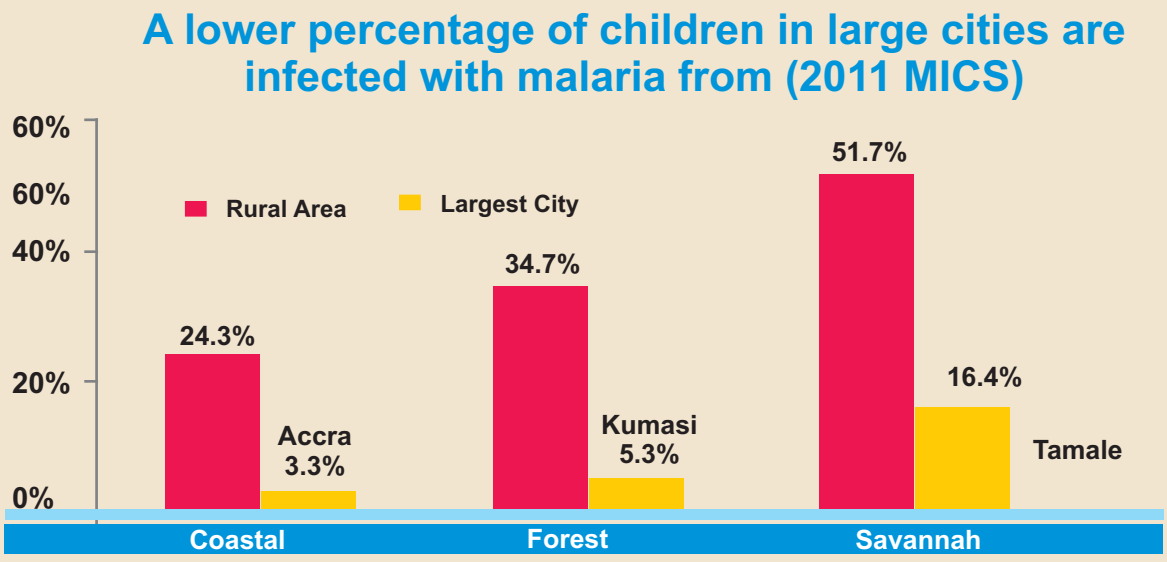
Living in rural areas, poverty, as well as living near urban agricultural areas has been found to be factors associated with an increased risk of malaria transmission. For instance, in the coastal zone, children living in urban Accra were 86% less likely to be infected with malaria parasite than children in rural areas. Children living in urban Kumasi were 85% less likely to be infected with malaria parasite than children in rural areas of the forest zone. Children living in urban Tamale were 68% less likely to be infected with malaria than children in rural areas of the savannah zone (Figure 14 & 15).

Figure 14: Risk of malaria in urban versus rural settings, Ghana.



Source: The Ghana Urban Malaria Study 2012

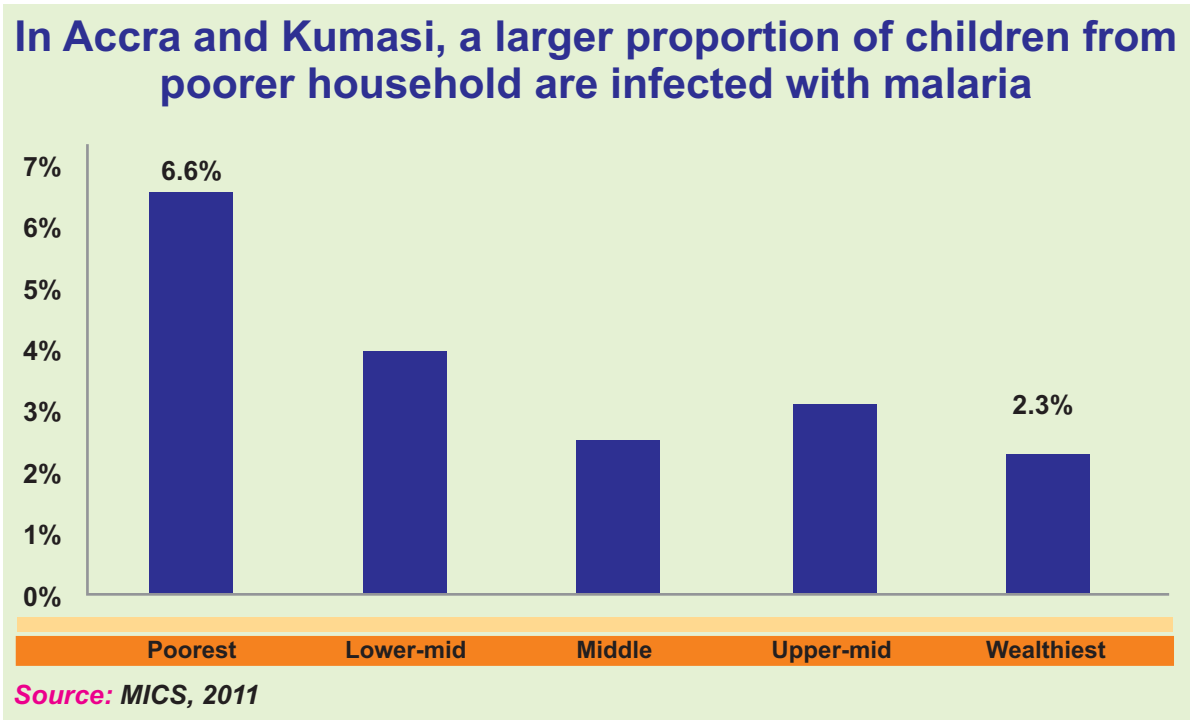
Figure 15: Malaria infectivity; rural versus urban in various ecological zones



Source: The Ghana Urban Malaria Study, 2012

Even within urban areas, the 2011 MICS showed that prevalence of malaria infection is higher for children living in the poorest households (6.6%) compared to those living in the wealthiest households (2.3%). (Figure15).

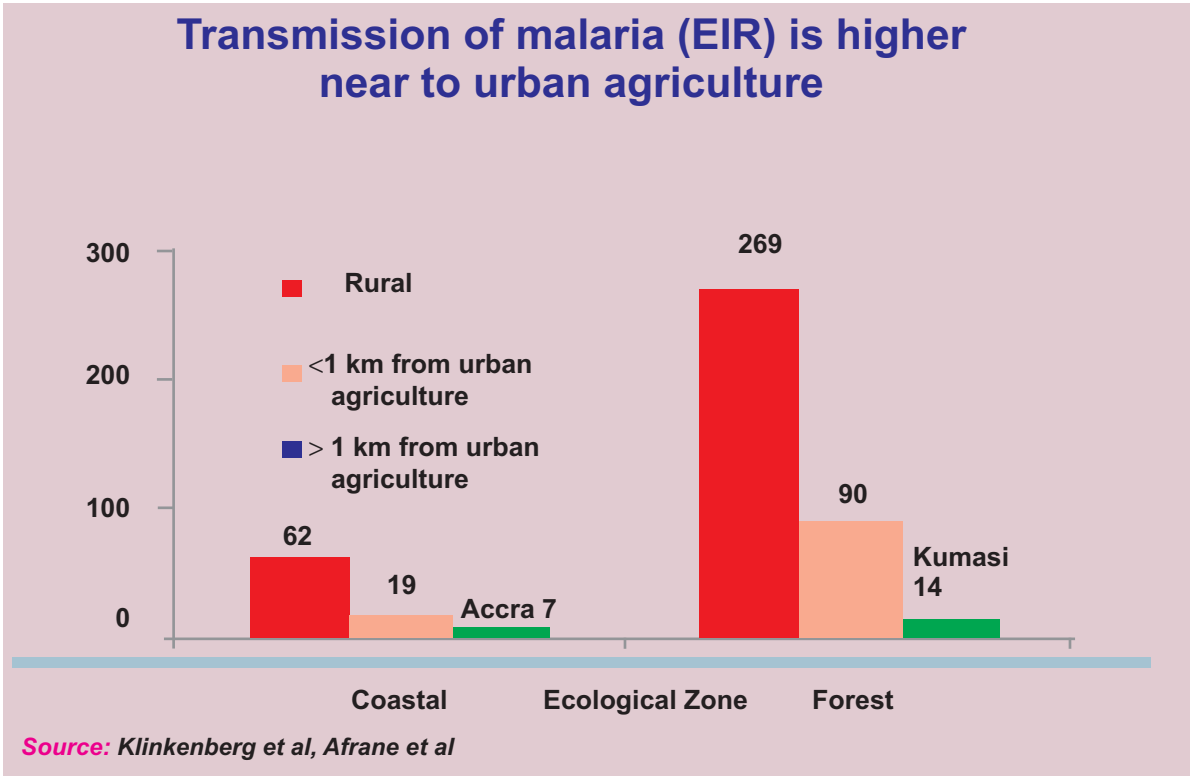
Figure 16: Prevalence of malaria among children per wealth quintiles, in Urban Ghana 2011



Source: MICS, 2011

Entomological studies show that the breeding of anopheles and the intensity of malaria transmission are both higher in neighbourhoods less than 1 km from sites of urban agriculture than in those more than 1 km from such sites (Figures 16 & 17).

Figure 17: Comparison of intensity of malaria transmission with distance from urban agriculture



Source: Klinkenberg et al, Afrane et al

3.2. THE MALARIA PROGRAMME PERFORMANCE

3.2.1. History of the malaria program

Intensive government efforts at controlling malaria in Ghana dates back to 1957 when a malaria control unit within the Ministry of Health (MOH) was established in the Volta Region in collaboration with WHO to train personnel in geographical reconnaissance, malariometric and entomological surveys, and to conduct trials of indoor residual insecticide application in the control of adult mosquito population.

The key milestones are as follows:

- 1957: Creation of a malaria control unit within the MOH
- 1961: Creation of a National Malaria Service when the country adopted the global Malaria Eradication Programme, which used residual spraying and Larviciding to control malaria vectors, however this was discontinued in 1967 due to inadequate technical feasibility and financial resources.
- 1992: Launching of a 5-year (1993-1997) National Malaria Control Action Plan with the focus on capacity building for improved disease management in health facilities.
- 1998: Commitment of Ghana to the Roll Back Malaria (RBM) Initiative, which builds on the Global Malaria Strategy with a focus on Africa, began with the initiation of malaria control in 30 districts focusing on case management.
- 2000: Commitment to the Abuja Declaration on Roll Back Malaria in Africa
- 2002: Round 2 of Global fund support to implement selected malaria control interventions in 20 districts.
- 2004: Round 4 of Global Fund support for countrywide scale up interventions at the time
- 2006: Ghana committed to malaria elimination in Africa

3.2.2. Current situation of the malaria programme

3.2.2.1. Key achievements of the program

3.2.2.1.1. Management of the National Malaria Control Program

The National Malaria Control Programme (NMCP) provides leadership in the control and prevention of malaria in Ghana. The NMCP is within the Disease Control Department of the Public Health Division (PHD) of the Ghana Health Service (GHS). At the national level, PHD is one of the ten Divisions that report to the Director General (DG). At the national level, the NMCP contributes to policy formulation, strategic planning, coordination of malaria interventions and provision of technical support to the regions and districts.

Technical updates and recommendations from the World Health Organization (WHO) and other internationally recognized credible sources of evidence, alongside locally documented experiences and lessons provide strong basis for policy and guidelines update by the National Malaria Control Programme (NMCP). The updates are cordinated and

evaluated by technical working groups such as Malaria Vector Control Oversight Committee (MaVCOC), Anti-Malaria Drug Policy Committee (AMDPC), Case Management Working Group, (CMWG) and the Monitoring and Evaluation Working Group (M&EWG) among others. The NMCP collaborates with the Policy, Planning, Monitoring and Evaluation Unit (PPME), Institutional Care Division as well as the Public Health Unit of the Ministry of Health/Ghana Health Service to facilitate and enhance adoption of, and adherance to the guidelines by all partners and implementors. The Global Fund supports some of the committee meetings (Antimalaria Drug policy committee and Case Management Committee) whilst PMI/USAID supports MaVCOC meetings.

3.2.2.1.2. Malaria partnership and collaboration

The National Malaria Control Program (NMCP) plays the leading role in coordinating all implementation strategies related to malaria control by both development partners and the Ministry of Health. NMCP has partnered with a number of relevant divisions, units and programs within the health sector to solicit their input into malaria control. Examples include Expanded Program on Immunisation (EPI), Maternal and Child Health (MCH) (IMCI program) and Health Promotion within the Family Health Division. There is also collaboration with other ministries such as Education, Agriculture, Women and Children's Affairs, Finance and Local Government, Ministry of Environment Science and Technology, Environmental Protection Agency, as well as the Civil Society Organization (CSOs), private sector, corporate bodies, media, religious and traditional leaders; even though there is room for improvement.

3.2.2.1.3. Funding for Malaria Control

In recent times, funds for Malaria control in Ghana have come principally from the Government of Ghana, The Global Fund, USAID/PMI, DFID, UNICEF and World Bank

In the mainstream health sector, Ghanaians have contributed directly through the payment of hospital fees and drugs to manage malaria during each episode. Since 2005, this contribution from the people has been increasingly indirect due to the equally increasing number of people enrolling with and accessing health care through the National Health Insurance. Thus, funding for Malaria prevention and management has flowed into the sector mainly from earmarked donor funds/grants and payments from the NHIA through contributions from the Government and people of Ghana. There is currently a tax waiver on LLINs, ACTs and insecticides as an effort by the government to increase financial access to these essential commodities

Sources of Funding

The total estimate of the 8-year malaria strategic plan (2008-2015), was almost three hundred and fifty eight million dollars which were contributions expected from all sources. However, actual funds that flowed in amounted to about One hundred and thirteen million leaving a gap of about two hundred and fifty million *(Table 2).*

Table 2: ***Contributions by Partner (Available)-2008-2015 Strategic Plan***

Source	Expected contribution Total Amount (US$)	%	Actual (USD)	Gap (USD)
GOV	231,482,046	65%	40,361,582.53	191,120,463.47
Private Sector	3,340,000	1%	1,580,697.20	1,759,302.80
Global Fund	29408067	8%	29,408,067.00	-
UNICEF	2,800,000	1%	402,064.81	2,397,935.19
WORLD BANK	9,000,000	3%	-	9,000,000.00
WHO	40,000	0.01%	22,309.15	17,690.85
UNITAID	901,800	0.27	-	901,800.00
USAID/PMI	80,850,000	12%	41,160,150.22	39,689,849.78
Italian Government	70,000	0.02%	-	70,000.00
TOTAL	**357,891,915**	**100%**	**112,934,870.**	**244,957,042.09**

Sources: **Strategic Plan for Malaria Control in Ghana, 2008-2015;** ***NMCP Evaluation Report (2003-2011); NMCP cash Book, World malaria reports: 2009-2013, Ghana Malaria Annual reports: 2008-2013,*** **Ghana Malaria Phase Two Gap Analysis Submitted to Global Fund,** ***Financing s trategies for malaria control and POW 2012***

3.2.2.1.4. Procurement, Supply Management

Procurement of malaria commodities and other supplies has been the responsibility of the f Procurement Unit of the MoH and the SSDM of GHS. Such commodities are stored centrally at the CMS and distributed to regions and facilities through the existing supply chain system. NMCP and partners collaborate with the Units by providing technical support in specifications, quantification and forecasting. Reporting on consumption of anti-malarials has been proven to be a major challenge. However, in collaboration with the PPME of the GHS, efforts has been made to capture such information in the DHIMS in addition to establishing an Early Warning System for procurement and supply chain management. This helps managers to improve the visibility of stock status at the facilities and Regional Medical Store (RMS) for these products in real time for prompt intervention.

3.3. MALARIA CASE MANAGEMENT

3.3.1. Diagnosis

In the year 2010, the policy of presumptive diagnosis was revised to testing before treatment. This led to the introduction of Rapid Diagnostic Test Kits (RDTs) in health facilities to facilitate testing. As at 2013, a test rate of 53%, mainly in the public health facilities, had been achieved. This is due to irregular supply of RDTs, reluctance of health workers to adhere to new policy on testing and non prioritisation of the community level in terms of supply of RDTs.

As part of efforts to improve on quality of care, a technical team from the Public Health Reference Laboratory in collaboration with iMaD (improving Malaria Diagnosis), conducts on-the-job training and supportive supervision for health workers (OTSS). The objective is to ensure that laboratory tests follow the acceptable procedures and practices as outlined in the Guidelines for Laboratory Diagnosis of Malaria. The other components of quality assurance of malaria diagnosis has not been fully developed. The focus in the 2014-2020 strategic plan will be on strengthening this aspect, deployment of testing at the community level, addresssing the low testing rates at the health facilities.

3.3.2. Treatment

In the year 2007, the Antimalarial Drug Policy (AMDP) was reviewed to include Artemether-Lumefantrine and Dihydroartemisinn Piperaquine as additional treatments to Artesunate-Amodiaquine, for the management of uncomplicated malaria. For severe malaria treatment, injection quinine and injection Artemether were recommended. A second revision of the AMDP took place in 2012,to introduce parenteral artesunate for the treatment of severe malaria in place of parenteral quinine. The Affordable Medicines facility for Malaria (AMFm), which was aimed at increasing access and availability of quality ACTs in the country, especially in the private sector, was launched in 2011. This resulted in an increase in the availability of ACTs in the private sector from 25% in 2009 to 83% in 2011. (*AMFm Independent Evaluation, 2011).* Feasibility on the use of diagnostics in the private sector outlets like pharmacies and licensed chemical shops (LCS) to rationalize the use ACTs, has been established through research studies *(Kintampo, 2013; Dodowa, 2014*). It is expected that this will be rolled in the next NSP.

The home based care (HBC) strategy is on course to improve access to health service at the community level through the use of Community Health Volunteers. The malaria control program supplies the antimalarias and registers for documentation and expect other stakeholders to provide the other logistics for managing diarrhea and acute respiratory infection (ARI). To improve utilization of these services, the HBC strategy is strategically focused in areas where Community Health Planning and Services (CHPS) are not yet fully functional.

The CHPS strategy is an approach, adopted by the Ghana Health Service, to be scaled up nationwide ultimately, to provide basic management of malaria, diarrhoea and acute respiratory infection at the community level

All health workers nationwide have been trained in the updated malaria policies and guidelines but because of inadequate supervison and high turnover of health workers there is the need for scheduled, continous capacity improvement as well as improvement in supportive supervison.

3.3.3. Seasonal Malaria Chemoprevention

The policy of Seasonal Malaria Chemoprevention (SMC) was adopted in 2013, with implementation planned to commence in 2014. It will be focused in areas of very high malaria transmission in the Northern Savannah area.

There is however concern with the recommended medication of Amodiaquine/ Sulphadoxine-Pyrimethamine (AQ-SP) because of the levels of G6PD Deficiency which has been well profiled in the targeted age group.

3.4. MALARIA IN PREGNANCY

The programme has been implementing the three-pronged approach of case management, prevention through Intermittent Preventive Treatment (IPTp) and promotion of vector control interventions. Strategies and activities in the management of malaria in pregnancy (MIP) are well articulated in the malaria case management treatment guidelines as well as malaria in pregnancy guidelines. IPTp has been provided as part of the antenatal care (ANC) package using the recommended drug, Sulphadoxine-Pyrimethamine (SP). Three tablets of SP (each tablet containing 500mg/25mg SP), is administered as directly observed therapy (DOT).

Ghana updated its IPTp policy to reflect the current WHO recommendation, which promotes IPTp for all pregnant women starting from second trimester on monthly interval until delivery.

Coalition of NGOs in malaria partners with NMCP to carry out house-to-house education on IPTp and also do follow-up to improve dropout rate. Despite these efforts, the target of 80% for IPTp2 was not attained: as at 2011, household survey showed coverage of 64.4%. This is in sharp contrast with 84.7% ANC attendance coverage for at least 4 visits *(MICS 2011*). This discrepancy may be due to irregular supply of SP, non-availability of potable drinking water for DOT and poor documentation in some health facilities.

Pregnant women are key targets for vector control measures with emphasis on Long-lasting insecticide-treated nets (LLINs) through mass campaigns and continuous distribution at ANCs.

3.5. INTEGRATED VECTOR CONTROL

Integrated Vector control (IVM) in the country has been promoting the use of LLIN and indoor residual spraying as the main focus with larval source management as a complimentary strategy.

3.5.1. Long-Lasting Insecticide Treated Nets (LLINs/ITNs)

LLIN has been a major strategy implemented in Ghana. In 2003, the coverage (ownership) was only 2.2%, but this improved to 48.9% in 2011 *(DHS 2003; MICS 2011)*. A nationwide mass campaign was undertaken over a two-year period from 2010-2012. A total of 12.5 million LLINs were distributed and hanged using the 'Door-to-Door" approach, covering all the 10 regions and all inhabitants with an estimated coverage of 96.7%. The use of these LLINs however, does not match up to the impressive high coverage of ownership (77.6% in children under five and 59.7% in pregnant women). *(SPH, 2012)*

The country has developed a strategy for continuous distribution, which aims at keeping up the coverage levels through ANCs, Child Welfare Clinics (CWCs) and Basic schools.

3.5.2. Indoor Residual Spraying (IRS)

Indoor Residual Spraying (IRS) as a vector control strategy is implemented in selected districts based on the burden and technical feasibility. The Programme targeted 63 districts in six out of the ten regions but has been able to cover 33 districts in the targeted six regions, as at end of 2013. AngloGold Ashanti, a private mining company and the USAID-PMI have been the main implementers of IRS. The Programme intends to build on their experiences and lessons learnt to expand IRS.

3.5.3. Larval Source management

This has just recently adopted in urban areas through larviciding with bio-larvicides on a limited scale. Experience from the earlier implementation has guided the development of the implementation guidelines, which is underway. A sword cutting for construction of a factory for manufacturing bio-larvicides was done in 2013. The plan is to continue implementing larviciding in the fixed findable and feasible breeding sites of the mosquitoes to support the other vector control measures.

Insecticide Resistance

Data from surveys nationwide gaps identified gaps in insecticide resistance. Sentinel sites for insecticide resistance monitoring have thus been established nationwide recently. Data from the sentinel sites will be used to inform the insecticide resistance management plan going forward. (Table 3)

Table 3: Mean percentage mortalities of Anopheles gambiae s.l. exposed to diagnostic doses of different insecticides

INSECTICIDE	% mortality after 24 hours					
	Wa Municipal	Wa West	Wa East	Adansi South	Adansi North	Amansie Central
Pyrethroids						
Alphacypermethrin	11.7	20.0	13.3	16.3	8.8	38.7
Deltamethrin	3.3	46.0	45.0	28.8	27.5	47.5
Etofenprox	25.0	8.0	20.0	20.0	13.8	40.0
Lamda-cyhalothrin	28.8	38.3	50.0	18.8	12.5	25.0
Permethrin	15.0	20.0	45.0	40.0	16.3	75.0
Carbamates						
Propoxur	95.0	82.0	90.0	96.3	87.5	93.8
Bendiocarb	93.0	88.0	92.0	96.3	92.5	97.5
Organophosphates						
Malathion	100	100	100	100	97.5	100
Fenitrothion	97.5	98.3	100	98.8	90.0	98.8
Organochlorine						
DDT	3.8	5.0	13.3	51.3	10.0	58.8

Vector bionomics

Malaria is stable in Ghana and characteristically low vector density, high vector longevity, receptive outdoor environment for vector survival among others permit transmission throughout the year by Anopheles gambiae s.l. and *An. funestus which* have been identified as the principal malaria vectors in the country and account for about 95% of all collections. *Anopheles gambiae* s.s. of the complex predominates and are found throughout the country. Both species are indoor resting and feeding; bite late in the night and are highly anthropophilic. *An. gambiae* breeds in temporal relatively clean sunlit stagnant waters and their breeding is more pronounced after the rains, while *An. funestus* breeds in semi-permanent stagnant waters along rivers and lakes and are found throughout the year. In addition lesser prominent vectors such as *Anopheles arabiensis* and *Anopheles melas* exist in the northern arid regions and the coastal mangrove swamps respectively.

The Entomological Inoculation Rate of the principal vectors which ranges from 418 in the northern part of the country to about 20 in the southern part needs to monitored regularly to ascertain transmission intensity.

3.6. INFORMATION, EDUCATION AND COMMUNICATION / BEHAVIOR CHANGE COMMUNICATION/ADVOCACY, COMMUNICATION, SOCIAL MOBILIZATION

This is informed by the malaria communication strategy, which aims to guide the development, implementation, monitoring and evaluation of specific, evidence-based communication, advocacy and related activities. Under this, the programme utilizes all the media channels (TV, radio and print). Knowledge has improved over time, but this does not translate proportionately to the needed behaviour change for malaria control. National Champions for malaria control; parliamentarians, traditional, religious and community leaders (strong support from the leaders to advocate as Malaria Champions during the nets distribution).

Strong support by media gatekeepers and journalists (Media Advocacy Against Malaria, African Media and Malaria Research Network)

3.7. MALARIA SURVEILLANCE, MONITORING AND EVALUATION SYSTEM

There has been an introduction of a web-based health information management system, the District Health Information System (DHIMS). In collaboration with the Policy, Planning, Monitoring and Evaluation Department of the GHS, NMCP has supported the roll out of the DHIMS, which has greatly improved visibility of national data and reporting rate. There is however still some challenges with completeness and accuracy of reporting, which together with all relevant stakeholders is being addressed.

Relating to programme monitoring and evaluation, this is guided by a costed National Malaria Control M&E plan 2008-2015. The objectives of which include strengthening and developing systems to collect, process, analyze and manage malaria transmission and disease burden data, including data on treatment and preventive interventions, enhancing management capacity to ensure implementation, accountability and appropriate feedback and for resource allocations to achieve expected outcomes and impacts. The plan defines indicators to monitor inputs, processes, outputs, and outcome and impact measurements; the progress made in these indicators is shown in *Tables 4 and 5.*

There are currently ten (10)-drug efficacy-testing sites, all funded by GF and operated by Noguchi Memorial Institute for Medical Research (NMIMR). The NMCP has recently established 26 sentinel sites for monitoring malaria parasite prevalence and other indicators. There are twenty entomological monitoring sites set up by AGAMal IRS programme, AIRS Ghana/PMI out of which six are functioning. The programme has been collaborating with various research institutes such as Kintampo, Dodowa, Navrongo Research Centres as well as the Research and development Department of the Ghana Health Service on specific monitoring and evaluation activities.

Table 4: Ghana RBM/ MDG Indicators Coverages for Malaria Control

INDICATOR	RBM/MDG TARGETS BY 2015	2000	2012	Remarks
Death associated with malaria	1527	6108	1129	Reduced by 81.52%
Under 5 years Malaria Cases Fatality Rate (CFR) (Severe Malaria admission)	3.5	14.0%	0.6	CFR Reduced by 95.83% - meaning more admitted malaria cases survive now than in the past.

Source: Indicators from Health Facilities Routine Data Collection in GHS/ DHIMs

Table 5: Indicators coverage's from Surveys

INDICATOR	RBM/MDG TARGETS BY 2015	GDHS 2003	GDHS 2008	MICS 2011	*SPH 2012
Percentage of Households owing at least one mosquito net (both treated and untreated)	80%	18.0%	45.4%	48.9%	96.7%
Percentage of Households owning at least one treated net	80%	3.0%	33.0%	49.0%	86.6%
Percentage of children under five years sleeping under a treated net previous night	80%	3.5%	28.0%	40.0%	77.6%
Percentage of pregnant women sleeping under a treated net previous night	80%	2.7%	20.0%	33.0%	59.7%
Percentage of all persons who slept underLLIN the previous night	80%	-	-	48.0%	80.0%
Proportion of Women who received at least2 doses of SP/Fansidar during their last pregnancy.	80%	1.8%	-	64.4%	-
Proportion of children under 5 with fever who are treatedwith appropriateanti malaria drugs (ACTS)	80%	0%	-	42%	-
Parasite Prevalence (Among 6to 59month)	18.75%	75%	-	27.5%	-

**KAP Survey on Malaria conducted by School of Public Health (SPH) – University of Ghana In 2012*

Progress has been made in achieving RBM Targets as shown in Figures 18 and 19. This lays a strong foundation for the programme in a achieving its objectives in the next strategic plan.

Figure 18: ***Progress Towards 2015 RBM Targets***

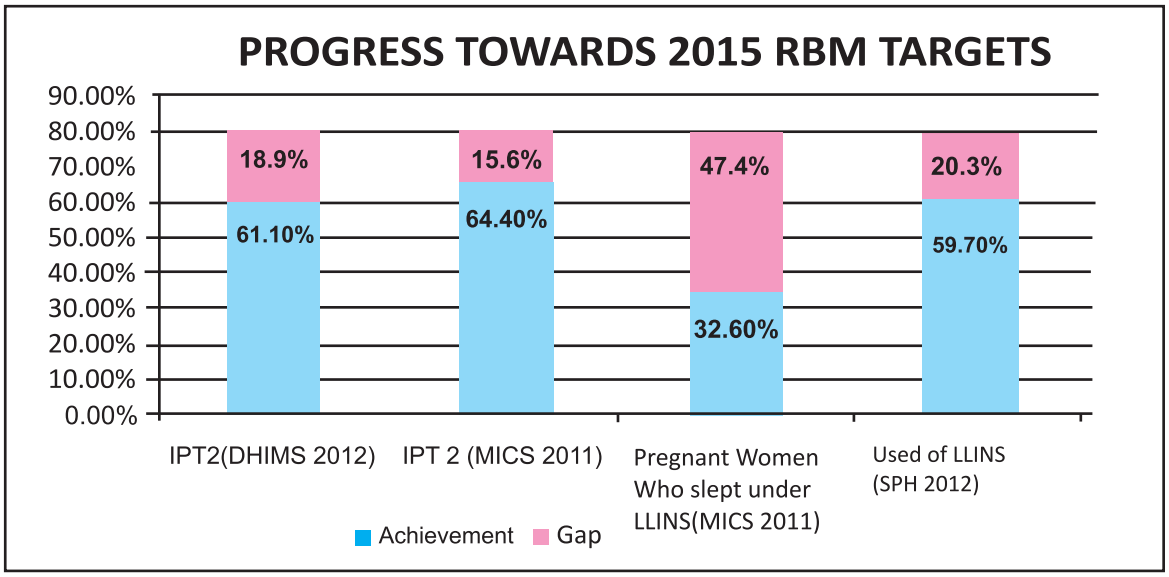
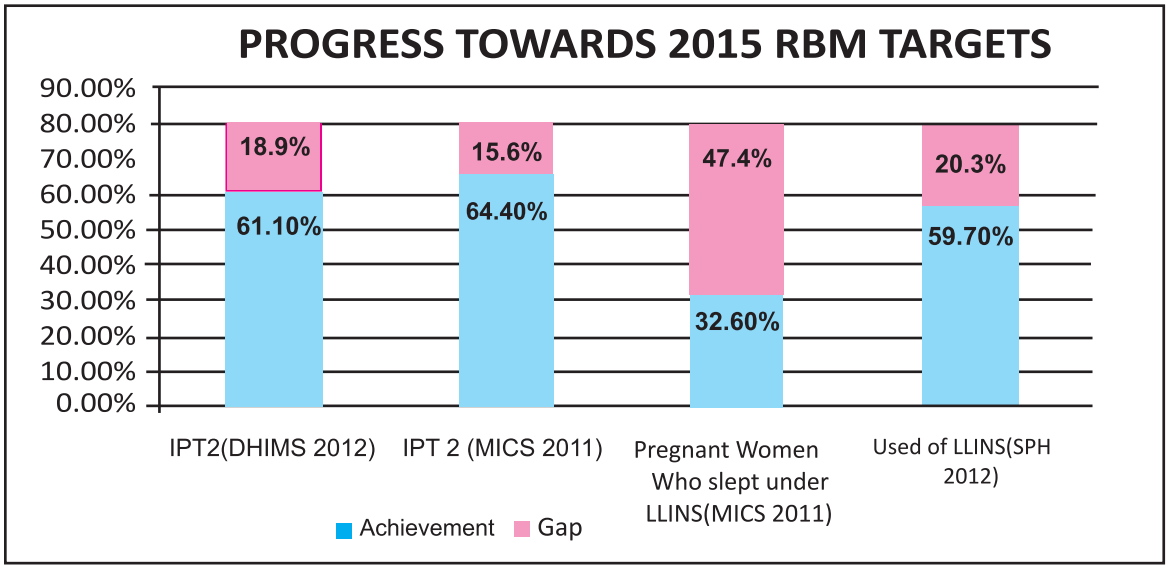


Figure 19: ***Progress made for RBM targets for under five years***



3.8. KEY ISSUES FOR MALARIA CONTROL

With all the efforts in control, the programme has achieved a reduction in the malaria burden in all areas in the country. This positions the country to tailor interventions to further reduce the disease in the high burden areas and consolidate the gains in the low burden areas for pre-elimination. This is deemed important as all the gains remains fragile. The following issues have been identified that will need to be addressed in the 2014-2018 NSP.

- Need for stratification of malaria endemicity up to the district level through monitoring of parasite prevalence and malaria transmission.
- The developing insecticide resistance is a threat for losing the gains in malaria control and therefore the need for stringent monitoring of insecticide resistance and development of a comprehensive plan.
- Inadequate funding for malaria control activities with heavy dependence on donor funding. There is the need to mobilize more domestic funding from both government and corporate institutions
- Inadequate consumption data due to weak LMIS at all levels with proliferation of different inventory management softwares resulting in quantification based on morbidity data. Delays in procurement of essential commodities leading to irregular commodities supply.
- The NMCP will need to emphasize its stewardship role in coordinating larval source management, which will allow both monitoring and evaluation of implementing partners.
- Sustaining efforts to maintain universal coverage of LLINs after the mass campaigns with continuous distribution.
- The need for multisectorial collaboration with sectors on mining, housing, labour employment and agriculture to address this.
- Increasing diagnostic capacity in the country to decrease the level of presumptive diagnosis of malaria and therefore rationalize ACT use.
- Issue of Folic acid and SP co-administration
- Need to collaborate with the FDA to improve on system for ADR reporting
- Strengthen the estimation of G6PD deficiency to reduce the risk of sulphonamide adverse reaction under IPTp and SMC
- To streamline the policies for better functionality of the iCCM strategy in view CHPS concept.
- There is the need to improve the collaboration with NHIA to better inform pricing and enable reimbursement for case management at community level among others.
- Strengthen the capacity for case management and supportive supervision

CHAPTER 4: STRATEGIC PLAN 2014-2020

4.0. OVERVIEW

In the year 2000, the first National Malaria Strategic plan (2000-2010) was drawn to give strategic direction to the control of malaria in Ghana. That strategic plan consolidated the achievements gained in the previous years and built on new interventions and strategies with support from a broader range of stakeholders including health partners, community members, research community, the academic sector and Nongovernmental Organisations (NGOs).

Since the first strategic plan was developed, new and effective interventions such as parasitic diagnosis and treatment of uncomplicated malaria with artemisinin-based combination therapy (ACT), prevention of malaria in pregnancy through use of Sulfadoxine-Pyrimethamine (SP), and indoor residual spraying (IRS) in hyper-endemic countries had emerged. Moreover, the Abuja declaration of May 2006 which came into being aimed at achieving and sustaining universal access to appropriate interventions for all populations at risk. There was therefore the need to revise the existing strategic plan (2008-2015) to reflect the new developments and MPR recommendations and to provide strategies for achieving the Millennium Development Goals (MDGs) and other international targets in line with positioning malaria in the global development agenda, 2015 and beyond.

This current Strategic Plan is for a period of seven years (2014-2020). The scope of the strategic plan is to consolidate the recent gains and accelerate malaria control in the high transmission areas to further reduce malaria burden, and move towards having more low transmission areas in Ghana by the end of 2020.

The objectives of this Plan are in line with the National Health Policy, the Health Sector Medium Term Development plan (2014-2020) of the Ministry of Health, the objectives of the Global Malaria Plan RBM, 2008-2015 and the Millennium Development Goals for 2015.

4.1. VISION

Malaria Free Ghana and contribute to the improvement of economic and social development.

4.2. MISSION STATEMENT

The mission of the Malaria Program is to ensure that the whole population of Ghana has a universal and equitable access to interventions for malaria prevention and treatment in line with the national health policy.

4.3. STRATEGIC DIRECTIONS AND POLICY PRIORITIES

The Government of the Republic of Ghana has always expressed a high level of willingness to make the fight against malaria one of key health priorities for national development.
The malaria control is integrated at all levels of the health system. It relies on the health sector policy based on the participation and empowerment of the community according to the national health policy. Given the changing malaria epidemiological profile in Ghana, specific interventions will be implemented tailored to specific transmission settings based on epidemiological stratification. Efforts will be made to ensure that the high malaria burden areas, which cover about 50% of the geographical landmass of the country, are purposefully targeted for universal access of interventions. On the other hand activities within regions with less than 20% parasite prevalence, will be consolidated as foundation for moving towards malaria pre-elimination in future.

4.4. GOAL, OBJECTIVES AND EXPECTED OUTCOMES

4.4.1. Goal

To reduce the malaria morbidity and mortality burden by 75% (using 2012 as baseline) by the year 2020

4.4.3. Specific Objectives

- To protect at least 80% of the population with effective malaria prevention interventions by 2020
- To provide parasitological diagnosis to all suspected malaria cases and provide prompt and effective treatment to 100% of confirmed malaria cases by 2020
- To strengthen and maintain the capacity for programme management, partnership and coordination to achieve malaria programmatic objectives at all levels of the health care system by 2020
- To strengthen the systems for surveillance and M&E in order to ensure timely availability of quality, consistent and relevant malaria data at all levels by 2020
- To increase awareness and knowledge of the entire population on malaria prevention and control so as to improve uptake and correct use of all interventions by 2020

4.4.4. Proposed Strategies

Objective 1: *To protect at least 80% of the population at risk with effective malaria prevention interventions by 2020*

Strategies:

- Distribution of LLINs through mass campaigns
- Continuous distribution of LLIN
- Indoor Residual spraying for areas with high parasite prevalence (MICS 2011)
- Larval Source Management
- Seasonal Malaria Chemoprevention
- Prevention of Prevention of malaria in pregnancy

Objective 2: *To provide appropriate diagnosis to all suspected malaria cases and prompt and effective treatment to 100% of confirmed malaria cases in accordance to treatment guidelines by 2020*

Strategies:

- Provide quality malaria diagnosis to all suspected cases at all levels
- Build infrastructure and capacity for malaria diagnosis at all levels of care
- Improve access to diagnosis and treatment in the private sector and enforce adherence to guidelines
- Strengthen capacity building for malaria case management at health training institutions and health facilities
- Management of severe malaria at all health facilities
- Increase access of health care delivery to deprived communities where there is no CHPS through the integrated community case management
- Supportive supervision of health workers at all levels

Objective 3: *To strengthen and maintain the capacity for programme management, partnership and coordination to achieve malaria programmatic objectives at all levels of the health care system by 2020*

Strategies

- Conduct regular Regional and national malaria reviews
- Improve capacity for programme management at all levels
- Facilitate biannual Malaria Interagency Coordinating Committee (MICC) meetings
- Facilitate quarterly MICC subcommittee and working group meetings
- Advocate at corporate and parliamentary levels for increase in resource allocation to malaria control activities
- Develop and implement a financing sustainability plan for accelerated malaria control
- Ensure efficient and effective procurement and logistics management

- Align Ghana Malaria NSP into the West Africa Health Organization Strategic Plan for Malaria
- Improve transport and logistics Management Information system for malaria commodities

Objective 4: *To strengthen the systems for surveillance and M&E in order to ensure timely availability of quality, consistent and relevant malaria data at all levels by 2020*

- Conduct Operations Research to inform programme direction
- Enhance routine surveillance
- Ensure enhanced coordinated monitoring of programme progress towards pre-elimination
- Support population based surveys (DHS, MICS, MIS, KAPs)
- Conduct mid and end of term reviews
- Improve malaria data quality
- Disseminate report on surveys and surveillance activities using various channels of communication

Objective 5: *To increase awareness and knowledge of the entire population on malaria prevention and control so as to improve uptake and correct use of all interventions by 2020*

- Advocate for adherence to test treat and track initiative
- Sustain behavioural change communication on malaria prevention at all levels
- Strengthen Community social mobilization to enhance uptake of malaria interventions

Develop a comprehensive accelerated malaria control communication strategy

CHAPTER 5: INTERVENTIONS AND IMPLEMENTATION STRATEGIES

Objective 1: *To protect at least 80% of the population at risk with effective malaria prevention interventions by 2020*

Ghana has adopted 'multiple-preventive", evidenced-based, proven interventions for malaria protection. These include; integrated vector management (IVM) and Intermittent preventive treatment in pregnancy (IPTp). Malaria control interventions in urban and peri-urban environments and across borders would be planned and implemented concurrently. This will be the primary objective for reducing transmission in all areas.

Strategy 1: Distribution of LLIN through campaigns

To sustain universal coverage already achieved, the strategy will include the procurement of LLINs, and distribution of one LLIN per two people, during mass campaigns. These will be quantified using the projected population and distributed using mass campaigns and other distribution channels. It is expected that a minimum of three campaigns will be undertaken during this period. Although net manufacturers recommend 3 to 5 year longevity, a longitudinal net durability study in Ghana will be undertaken to ascertain this claim.

Strategy 2: Continuous distribution of LLIN

In line with the newly developed guideline on continuous distribution, LLIN distribution will be through multiple channels: ANCs, child welfare clinics (CWC) and basic schools targeting pregnant women, children under five years and school children respectively. In addition free or subsidized nets through NGOs, faith-based organisations as well as corporate bodies, will form the main strategies for the "keep –up" campaign.

Strategy 3: Indoor Residual spraying for areas with high parasite prevalence

This strategy is targeting the high burden districts. It will be also used in part to address the emerging resistance in areas where this is detected. This plan will include the procurement of insecticides and related consumables and equipment for IRS and the conduct of annual/bi-annual indoor residual spraying in targeted areas/districts depending on the type of insecticide to be used. To ensure successful implementation, the Inter-sectoral IRS Committee will provide on-going guidance/oversight. Annual reporting on IRS activities and coverage indicators will be promoted as part of monitoring of IRS implementation.

Strategy 4: Larval Source Management

In Ghana, larval source management will involve larviciding and environmental management conducted in the context of Integrated Vector management (IVM). This will continue to be carried out in combination with the other interventions. Larviciding will be conducted in areas where breeding sites are few, fixed and findable. The number of unbiased studies on the efficacy or effectiveness in Africa, including, Ghana is limited (WHO, Global Malaria Plans to programme, 2012). Therefore, larviciding in Ghana will be conducted within the broader context of generating or reviewing local data on larviciding. Areas targeted for larviciding will be mapped with GPS and implementation evidence documented to inform expansion phase.

Activities proposed under "Environmental manipulation and modification" will be in line with the current environmental sanitation policy *(Revised Environmental Sanitation Policy 2010), which* addresses some of the major components of environmental management and housing.
Through collaboration with other Ministries, Departments and Agencies (MDA), building regulations and Environmental management by-laws *(especially illegal surface mining)* will be ensured and enforced.

All larval control activities will be under the direction of NMCP. Effective partner collaboration, under the Malaria Vector Control Committee (MAVCOC), will ensure appropriate capacity building, technological transfer.as well as an objective assessment of the impact of these interventions.

Strategy 5: Entomological Monitoring and Insecticide Resistance Management

Entomological Monitoring

Entomological surveys shall be conducted by qualified research institutions to provide data on vector transmission dynamics, insecticide resistance profiles, insecticide batch potencies, and effectiveness of spray applications, efficacy of insecticides used for vector control activities and the elucidation of mechanisms of insecticide resistance and its impact on programme implementation.

Baseline resistance testing will be conducted in sentinel districts by suitably qualified and recognized research institutions. Routine vector resistance monitoring will be conducted as part of the insecticide resistance management plan.

Insecticide Resistance Management

Effective resistance management depends on early detection of the problem and rapid assimilation of information on the resistant insect population so that rational insecticide

choices can be made. Baseline resistance testing will be conducted in each district by a recognised institution. The most efficacious insecticide will be adopted for spray operations. Routine vector resistance monitoring will be conducted as part of the insecticide resistance management plan.

The different stages of insecticide resistance monitoring will include quality control checks on spraying, monitoring of insecticide efficacy on sprayed surfaces, field trials of potential insecticides and detection of resistance using standard bioassay procedures.

To effectively manage insecticide resistance within vector populations, insecticides used in the IRS operations will be rotated between 1-2 year intervals depending on insecticide resistance patterns among the vector populations. All findings from resistance studies will influence policy decisions.

Strategy 6: Seasonal Malaria Chemoprevention

SMC will be implemented in phases in the northern part of the country beginning with UWR with recommended anti-malarials administered at no cost to the clients.

The main activities will mainly be in the quantifying and procuring the antimalarial medicines, training the teams that will be giving SMC and supervising the implementation. These will be given to the children during the recommended timeframes preferably using a combination of approaches like house-to-house and fixed post distribution. Monitoring of adverse reactions will be encouraged during implementation.

Strategy 7: Prevention of malaria in pregnancy

Malaria prevention in pregnancy will be delivered as a package of interventions including the use of LLINs and Intermittent Preventive Treatment in Pregnancy (IPTp) using sulfadoxine-Pyrimethamine. This will be in accordance with policy guidelines and in collaboration with the Reproductive and Child Health Department of the Family Health Division, private maternal homes and other partners. Monitoring of adverse events for antimalarials used for pregnant women will be strengthened. There will be increased advocacy for the production and use of 0.4mg folic acid tablets and its inclusion into the essential medicines list.

Guidelines will be reviewed, produced and distributed. More focus will be on defaulter tracing in an effort to reduce missed opportunities. Strengthening of logistical support and training of non-midwifery health workers will be a strategy pursued to increase access to IPTp.

Monitoring of implementation will be strengthened to provide reliable routine data for decision- making. Collaboration with Food and Drugs Authority (FDA) at all levels will be

improved for Adverse Drug Reaction (ADR) reporting. Community involvement for increased IPTp coverage will form a major strategy through existing community structures and NGOs.

Objective 2: *To provide parasitological diagnosis to all suspected malaria cases and provide prompt and effective treatment to 100% of confirmed malaria cases by 2020*

Malaria Case management is a continuum of care that starts from the community level to the health facility. Parasitological diagnosis and prompt and effective malaria treatment with efficacious anti-malarial medicines constitute important components of appropriate case management. The strategies below will greatly assist in ensuring that both the laboratory and treatment services will be extended to achieve universal access to all populations at risk.

Strategy 1: Provide quality malaria diagnosis to all suspected cases at all levels

Measures will be put in place to increase use and improve capacity for laboratory diagnosis at all levels to address irrational use of ACTs. Ghana's policy recommends that all suspected malaria cases are confirmed in accordance with the T3 initiative (Test, Treat and Track). Routine laboratory confirmation will be by microscopy and Rapid Diagnostic Tests (RDTs) for malaria. Efforts will be made to address the low rates of testing by improving and strengthening infrastructure, logistics, capacity and confidence for diagnostics in public and private sectors. Strategies to be pursued include structured trainings and skills maintenance, focusing both on pre- and in-service training, strengthening quality control/assurance and providing laboratory guidelines. To ensure continuous supply of diagnostics, supportive monitoring/supervision, improved stock management will be pursued. Quantification, based on consumption data, will be the norm. In collaboration with PMI and the Clinical Lab unit, the OTSS being implemented for all the laboratories in Ghana will be continued. Other diagnostics will also be explored for use in different settings in Ghana.

Strategy 2-: Strengthen health worker capacity for malaria case management

In order to ensure improved health worker performance, capacity will be built at all levels. This will include effective distribution of treatment guidelines; manuals and algorithms to ensure these documents reach the end-user. Training of health workers in both public and private facilities will be a key strategy. This will ensure improved skills to manage all uncomplicated malaria cases with focused attention to special groups like SCD, the non-immunes, those with HIV/AIDS, malnourished and refugees. Furthermore, through effective collaboration with health training institutions, curricula of health training institutions will be updated to include malaria modules. Training of tutors in pre-service institutions on malaria policies and guidelines will be carried out whilst making available to the health training institutions, all relevant documents to facilitate the training of students.

To ensure adherence to guidelines, regular supportive supervision will be conducted.cA certification system for awarding health facilities that meet the standards on management of patients in all aspects will be implemented.

Strategy 3: Management of Uncomplicated and Severe Malaria at Health Facilities

With regard to severe malaria, the guidelines for the management of severe malaria will be reviewed and clinicians will be trained in severe malaria management especially in triaging and managing of emergencies. Protocols, guidelines, job aides and observation/monitoring charts for the management of severe malaria at referral points will be provided.

Regular supportive supervision to referral levels of care will be conducted in collaboration with Institutional Care Division (ICD) and relevant Partners to ensure total adherence to protocols and response to emergency care. Additional support for basic equipment for emergency care of severe malaria cases in at least 60% of district hospitals will be provided.

Strategy 4: Increase access to Community Management of Malaria through integrated community case management

The NMCP will be re-strategizing the Home Based Care/Integrated Community Case Management program in line with current health sector community health care reform and upcoming interventions. Under these reforms, all community health activities are to be routed through the Community-based Health Planning Services (CHPS), which is the Primary Health Care level. Under CHPS, Community Health Officers (CHOs) will be the lead service providers with support from Community Based Agents (CBAs), who are selected by their communities delivering primary health care. iCCM will therefore take place in communities where there are challenges in access to health care due to geographical and CHO/CHN limitations.

Currently community management of malaria is part of the package for integrated community case management (iCCM) which includes management of Acute Respiratory Infections (ARI) and diarrhoea. In line with global efforts to promote iCCM, efforts would be made to integrate maternal, neonatal and nutrition interventions at the community level. Community Based Agents (CBA) will be trained in the use of RDT for testing before treatment. Prior to this, Home Based Care (HBC)/ iCCM guidelines will be updated to include the use of RDT.

Licensed Chemical Sellers (LCS) will also be trained to improve case management at the community level. Advocacy for a change in policy by the Pharmacy council to roll out RDT use in LCSs will be undertaken. A mechanism for regular supportive supervision of CBAs, including monthly supervision by CHOs and quarterly review meetings, will be strengthened.

Support will be provided for the establishment of a system of providing regular motivation/incentive package for CBA. Advocacy with supporting partners and relevant departments for the provision of other supplies for iCCM including zinc, ORS, antipyretics and antibiotics (amoxicillin) and funding to fill the identified gap will be undertaken. ACSM activities on appropriate use and acceptance of this strategy and an effective system of documentation and reporting of diagnosis and treatment of malaria, ARI and diarrhoea at community level will be undertaken.

Strategy 5: Improve access to diagnosis and treatment in the private sector and enforce adherence to guidelines in the private sector

Building on the successful pilot implementation of AMFm in the private sector, access to quality assured affordable medicines will be increased by using the capacities of the private sector to distribute medicines to rural and hard to reach areas through the integration of the Private Sector Co-payment Mechanism.

The programme will support effective procurement and timely supplies of antimalarials and enforce the phase-out of monotherapies for treatment of uncomplicated malaria in this sector. In addition, assurance will be given for Licensed Chemicals sellers having adequate stocks of antimalarials at all times to aid community level treatment especially in communities where they are the first point of care for patients. In line with the treatment guidelines, RDTs for malaria will be rolled out in pharmacies and Licensed Chemical Shops.

CHAPTER 6: NTEGRATED SUPPORT SYSTEMS

Objective 3: *To strengthen and maintain capacity for programme management and partnership coordination to achieve programmatic objectives at all levels of the health care system by 2020*

The programme is expected to have more challenging issues that will need to be addressed during this period 2014-2020. Some of these include new innovative tools, such as malaria vaccine, that are expected to be introduced, after recommendations are passed for implementation in the country. This will require a level of readiness for its adoption, if it is to be implemented. There are also other innovative tools in diagnosis, treatment and vector control that may be introduced during this time.

Strategy 1: Program Management, leadership and Governance

Program management encompasses the overall coordination of interventions and strategies. It includes human resource capacity building and management, procurement, transport, infrastructure and logistics management. Platforms will be enhanced to improve partnership, harmonization with regional malaria strategies as well as cross-border collaboration for a sustained and enhanced program performance.

Regional and national malaria reviews

In order to ensure that the programme progress is tracked and maintained, regions will conduct annual reviews so that every district's activities are assessed. For the programme to reach the 75% reduction in malaria burden as proposed, each district will need to intensify activities towards reducing set targets. The progress therefore by district will be assessed annually through the regional reviews. Also on annual basis, the programme together with all its partners will hold national reviews to assess progress after which an annual work plan will be developed.

Transport is key to successful implementation of malaria control activities. In the past, NMCP has been able to procure trucks that alleviated the transport challenges for the ACTs. The programme will contribute to the costs of maintaining a vibrant transportation system especially for the malaria commodities.

Strategy 2: Improve capacity for programme management at all levels

The programme together with partners will strengthen capacity of staff and stakeholders to better manage malaria activities at all levels. The capacity of human resource will be

regularly assessed and corrective measures will be taken to address the gaps. More particularly, vector control and entomological capacity will be developed. This will ensure oversight of the programme at each level for better accountability. In addition, there will be participation of programme staff in relevant training meetings, seminars and conferences at national and international levels.

Strategy 3: Facilitate Biannual Malaria Interagency Coordinating Committee and working group meetings

The Malaria Interagency Coordinating Committee (MICC) is the main technical advisory group in Ghana, charged with ensuring programme implementation is in line with policies and guidelines. They will be facilitated to hold biannual meetings to strengthen their oversight role of malaria programming. In addition, in the likely adoption of malaria vaccine as policy, the MICC will hold extraordinary sessions for the designing of the implementation framework for malaria vaccines. Other malaria technical working groups will be strengthened and will meet on a quarterly basis to monitor progress towards the agreed on activities within each thematic area.

Strategy 4: Advocate at corporate and parliamentary levels for increase resource allocation to malaria control activities

As the resource envelope diminishes globally, Ghana will need to look for additional resources to ensure that activities for malaria control are implemented. Specifically, continued advocacy through the relevant sectoral committees of parliament and the corporate sector, will be pursued. Advocacy on more collaboration with National Health Insurance Authority (NHIA), to address pricing mechanisms in order to remove distortions and also for inclusion of iCCM services in NHIA, will be pursued.

Strategy 5: Develop and implement a financing sustainability plan for accelerated malaria control

The focus of the programme is to sustain the gains made so far and accelerate interventions to further reduce the malaria burden. The focus of this strategy will be to produce a costed investment case for maintaining government resources in malaria as well as producing a private- public partnership concept for supporting the investment case for malaria in Ghana. Funding proposals to international funding mechanisms/agencies will be prepared based on the developed plan. Continued collaboration with National Health Insurance Authority and other Health Insurance Schemes in Ghana to improve financial access to healthcare will be explored. All these will be complemented with improvements in financial and auditing systems, to ensure judicious use of funds in both public and private sectors. Training and supportive supervision on financial management, at regional and district levels, will be undertaken in collaboration with the Finance Department of the Ghana Health Service.

Strategy 6: Ensure efficient and effective procurement and logistics management

A key ingredient for the successful delivery of services in programme implementation is the availability of commodities at all times and at all levels. The Procurement Unit of the Ministry of Health and the Stores, Supply and Drugs Management (SSDM) of the Ghana Health Service, manage the procurement of drugs and medical supplies, including malaria commodities. Antimalarial drugs, are distributed to hospitals and health centres through a combination of "push" and "pull" strategies.

NMCP, with partners will support the sector units on PSM processes including building capacity in PSM especially in forecasting, stock management and requisition so as to ensure regular availability of malaria commodities. In addition, NMCP and partners will contribute to efforts to implement an integrated LMIS that will provide real time data on malaria commodities; regional and facility level consumption and stock on hand. This will be monitored and used centrally for proper forecasting and quantification. NMCP and partners will support measures to ensure proper warehousing and storage practices at all medical stores.

Logistics management information system for malaria activities

In terms of Logistics Management Information System (LMIS), the GHS is currently piloting an SMS_ Early Warning system that reports on stock levels. NMCP will contribute to the rolling out of this system when wide scale implementation starts.

Strategy 7: Ensure Alignment with West Africa Health Organization Malaria Strategic Plan and Cross-Border Collaboration

Ghana NMCP with other West African countries, worked closely with the West African Health Organization (WAHO), to prepare a Regional Strategic Plan for sustaining and accelerating regional malaria control towards elimination. This will be facilitated by ECOWAS regional economic umbrella.

To strengthen cross border collaboration, the program will collaborate with WAHO, to develop, with other African Countries, a cross-border strategy to accelerate malaria control towards attaining pre-elimination/elimination in the sub-region. It is expected that through the African Leaders Malaria Alliance (ALMA) and other advocacy groups, high-level commitment of governments will be assured.

Objective 4: *To strengthen the systems for surveillance and M&E in order to ensure timely availability of quality, consistent and relevant malaria data at all levels by 2020*

Strategy 1: Operations Research to inform programme direction

The programme will establish a strong collaborative initiative with North-South and South-South research institutions. Together they will define a malaria operational research agenda for which resources will be mobilized. The programme will provide a forum for research results dissemination/sharing. In addition, there will be a follow-up evaluation of the results of the on-going phase III clinical trial for herbal extracts with antimalarial property for possible development of a treatment protocol.

At the same time, this strategy will see to the introduction of a malaria vaccine after 2015 following recommendation for its roll out. The most clinically advanced candidate, Repeat T-cell surface antigen of Hepatitis B, surface antigen for the malaria Sporozoites (RTS, S) is currently undergoing phase 3 evaluation in young African children across 13 clinical sites in eight African countries including Ghana. There are two sites: Agogo and Kintampo being used for the trials. A Technical Working group will be formed with the goal of submitting recommendations to Malaria Inter-agency Coordinating Committee (IMCC), and a technical brief on the framework for decision on RTS, S after the recommendation of W.H.O in 2015.

Strategy 2: Enhance routine surveillance and Use

MOH/GHS has successfully rolled out the second phase of District Health Information Management System (DHIMS2) and this has greatly improved data capture and compilation. Major challenges remain with completeness and timeliness of the data. The program will collaborate with the relevant department of Human Resource and Research Directorate (HRRD) and PPME to strengthen the capacity of health workers as well as logistic infrastructure for an effective functioning of DHIMS2. If this is adequately implemented, it will enable harmonization of all partners to the use of one surveillance system. In addition, data quality assurance system will be implemented. Health workers will be trained in the use of data and it's dissemination for decision-making, including summarizing the data in malaria bulletins. The data too will be regularly interrogated at point of collection before dissemination. This strategy will also ensure dissemination of all survey and surveillance reports for better advocacy on the programme

Strategy 3: Enhance coordinated monitoring of programme progress

This strategy will be key for successful programme management. For each of the major interventions that are implemented, in-built evaluation mechanisms will be ensured as a measure of effectiveness of the strategy. Others like the evaluation of Seasonal Malaria Chemoprevention (SMC) implementation and the logistics structure for monitoring and evaluation at all levels, will also be done. NMCP will also contribute to the strengthening of the pharmacovigilance system and quality testing of malaria medicines and diagnostics in collaboration with FDA

Strategy 4: Support Population-based Surveys and Dissemination

Several malaria surveys will be conducted including community coverage surveys, population-based surveys such as DHS, MICS and malaria indicator surveys, as well as health facility surveys/assessments. This will provide insights on the coverage of the interventions. A specific study on the economic impact of malaria in Ghana will be commissioned. Other surveys will be decided on in response to emerging. Needs and gaps that need to be addressed. This strategy too will ensure dissemination of all survey and surveillance reports for better advocacy on the programme.

Strategy 5: Conduct mid and end of term reviews

A mid-term review of the strategic plan will be conducted after which the NSP will be revised. This will allow the programme take on any additional or new approaches recommended that are currently not reflected in this plan. At the end of the NSP implementation, a comprehensive malaria programme review will be undertaken and a new strategic plan developed.

Strategy 6: Rapid Response To Malaria In Emergency Situations

Currently Ghana does not experience complex malaria emergency situations but there is a plan for emerging epidemics. Considerations are being made for possible emerging situations as a result of the effect of climate change as well as the likely loss of malaria immunity as exposure to malaria reduces. To this effect, the review of the current Integrated Disease Surveillance and Response (IDSR) to reflect response to malaria in emergency situations for all levels will be undertaken. Monitoring malaria transmission pattern on account of possible climate change and other effects in collaboration with Meteorological department, whilst maintaining collaboration with all partners especially National Disaster Management Organisation (NADMO), to deal with any health emergencies, will be pursued.

Objective 5: *To increase awareness and knowledge of the entire population on malaria prevention and control so as to improve uptake and correct use of all interventions by 2020*

Ghana's malaria communication strategy promotes an evidence-based Information, Education for Strategic behavioural change communication (IEC/SBCC) to enable the population to make informed decisions that improve their health and illness outcomes. Principal activities on IEC/SBCC will also focus on achieving increased awareness and effective utilization of preventive (LLINs, IPTp, IRS, Larviciding and environment) interventions, and malaria case management (facility, community levels). IEC/SBCC activities will address issues such as: Late and inconsistent ANC attendance; IPTp acceptance and uptake; IRS household acceptance and other vector control interventions; Usage,

Maintenance and care for LLINs; Adherence to treatment and case management protocols by prescribers; Patient demand for proper diagnosis before treatment and Uptake of health care at the community level (iCCM /iMCI).

Strategy 1: Develop a comprehensive national malaria communication strategy

The National Malaria Communication strategy gives a strategic direction to guide the development, implementation, and monitoring of the communication and behaviour change component of malaria prevention and control. It provides a planning framework aimed at defining communication and behaviour change objectives, key target groups, messages, channels, and communication interventions at different levels. It revolves around raising awareness about malaria, addressing the key determinants in behaviour for prevention and care seeking for malaria in order to improve the use of proven malaria prevention and control intervention with the ultimate goal of a long- term normative shift in malaria related behaviours among the key target groups nationwide.

This strategy will be the guiding document for all partners to implement a unified and cohesive behaviour change and communication plan, and allow for complementing programmes among different partners

Impact assessment of SBCC campaigns using Surveys (Omnibus, Rapid Impact Assessment) will be conducted on knowledge, attitude, behaviour and practices on malaria control interventions. Key malaria control messages will then be redefined and SBCC materials updated materials will include posters, counselling cards, flip charts, leaflets/flyers, pull-up banners, radio and TV spots and documentaries.

The national technical working group on malaria advocacy, strategic behaviour change communication and community mobilization will be strengthened. The working group will be the main overseeing body for strategy implementation: to design, coordinate, and oversee the implementation of malaria communication intervention on an on-going basis.

Strategy 2: Advocacy for sustained malaria control

This strategy will ensure sustained advocacy with political leaders, policy makers, opinion leaders and corporate bodies for support for malaria control. This will entail establishment of lobby groups for the presidency, members of parliament and local governments for increased domestic funding for malaria control. This will involve preparing and providing regular updates, feedback and progress reports to partners on national scale up campaigns and stories of interest. The utilisation of country malaria champions on different aspects of malaria control will be promoted. In addition, advocacy for the deployment of focal persons, for health promotion focusing on Behaviour Change Communication at district level, will be pursued. As relates to various inter-country collaborations, advocacy geared towards strengthening and institutionalizing cross boarder collaboration on malaria control will be done. Relevant advocacy materials for the introduction of the malaria vaccine will

also be developed; including special sessions organized for policy makers and government officials ahead of its introduction.

Strategy 3: Advocacy for test, treat and track among health workers

There have been a few challenges with some health workers' adherence to the diagnosis and treatment guidelines. Advocacy to improve the ability to test, adhere to test results and treat correctly will be pursued. It will explore addressing some of the reasons preventing clinicians' adherence to malaria test results for good prescriber compliance. Also the communication skills of health workers will be improved through periodic orientation and supervision and the use of quality assured diagnostics and antimalarial medicines for the population.

Strategy 4: Sustained education on malaria prevention at all level

One of the key challenges identified is the continuous utilisation of LLINs for malaria control. This strategy seeks to ensure that the general population uses LLINs daily for prevention during all seasons. In the initial period, the risk factors and behaviours towards malaria control interventions will be identified. Then all the current strategies being used will be evaluated against the identified factors. Specific community mobilisation campaigns will be built in with each intervention, such as LLINs mass distribution or IRS campaigns. Malaria prevention and control media campaigns and news articles will be produced and disseminated.

Strategy 5: Community mobilization to enhance uptake of malaria interventions

This will entail the engagement and motivation of stakeholders to rollout National Communication Campaigns at district and community levels. Target groups will include schoolteachers, pupils, traditional leaders, religious leaders, and civil society groups. A package of evidenced-based interventions will be used to develop IEC/SBCC materials to ensure delivery of consistent messages to target audience. Community listener groups will be formed to monitor and give feedbacks on malaria spots aired and other SBCC interventions in the community.

CHAPTER SEVEN: MONITORING AND EVALUATION

Monitoring and evaluation forms an essential aspect of the program and ensures that results (impact, outcome, outputs) at all levels provide the basis for accountability and decision-making at program and national levels. The strategic plan 2014-2020 for Malaria Control is supported by an M&E plan, which aims at reinforcing the information system for Malaria control in Ghana. This will provide timely, accurate, reliable and valid data for planning, management and decision-making. The programme will develop a grid of core indicators for regular monitoring of malaria status in the country. All health workers will be trained in the use of these indicators so that they are able to brief all those who are concerned at their levels.

7.1 PERFORMANCE FRAMEWORK

The overall objective is to track the performance of malaria program progress at all levels. The Plan attempts to harmonize the M&E tools and methods at all levels, and align it with the national GHS M&E system. In line with the M&E plan 2014-2020, the malaria performance framework will guide the follow up of the strategic plan implementation, and inform the key adopted indicators (process, output, outcome, impact). *Table 6* summarizes the indicators that will be tracked per objective.

Table 6: Performance Framework for malaria NSP 2014 to 2020

ITEMS	INDICATORS	Regions	Value	Year	Source	ANNUAL TARGETS						
						2014	2015	2016	2017	2018	2019	2020
						Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Goal: To reduce the malaria morbidity and mortality burden by 75% (using 2012 as baseline) by the year 2020	Parasitemia prevalence: children aged ~~6~~ 59 months with malaria infection (by microscopy) (percentage)	All	27.50%	2011	MICS (Multiple Indicator Cluster Survey)/DHS	20%		15%		10%		6.90%
	All-cause under 5 mortality rate	All	80 per 1000lb	2008	DHS/DHS+ (Demographic and Health Survey)	45/ 1000lb		35/ 1000 lb		25/ 1000 lb		20/ 1000 lb
	Malaria test positivity ratio	All	50%	2013	HMIS	45%	39%	34%	29%	23%	18%	13%
	Confirmed malaria cases (microscopy and RDT) per 1000 population per year	All	186	2013	HMIS	166	146	126	106	86	66	47
	Inpatient malaria cases tested (microscopy and RDT) per 1000 population	All	17	2013	HMIS	15	13	12	10	8	6	4
	Inpatient malaria deaths per 100,000 persons per year	All	9	2013	HMIS	8	7	6	5	4	3	2
	Anemia prevalence: Percentage of Children aged 6 59 months with hemoglobin measurement of <8 g/dl – (percentage)	All	7.40%	2011	DHS/MICS	5%		4%		3%		2%

Performance Framework for malaria NSP 2014 to 2020

ITEMS	INDICATORS	Regions	Value	Year	Source	ANNUAL TARGETS						
						2014	2015	2016	2017	2018	2019	2020
						66%		77%		89%		100%
Objective 1: To protect at least 80% of the population with effective malaria prevention interventions by 2020	Percentage of households with at least one insecticide -treated net Percentage of children under 5 years old who slept under an insecticide-treated net the previous night	All	39%	2011	MICS (Multiple Indicator Cluster Survey)	53%		62%		71%		80% 95% 65%
	Percentage of pregnant women who slept under an insecticide-treated net the previous night	All	32%	2011	MICS (Multiple Indicator Cluster Survey)	48%		59%		69%		80% 85% (10089099/ 11869529)
	Percentage of individuals who slept under an insecticide-treated net the previous night	All	33%	2011	MICS (Multiple Indicator Cluster survey)	49%		60%		70%		80% 100% (50/50)
	Number of Long Lasting Nets (LLNs) distributed to delivery points health facilities, schools,(Routine)	All	85% (1,336,381/ 1,572,213)	2013	School Health report and DHIMs	1,297,574	682,734	2,724,209	1,794,941	2,165,225	2,896,526	2,961,025
	Proportion of Population at risk potentially covered with Long Lasting Nets (LLNs) distributed through mass campaign	All	90%	2012	Campaign report	50%	44%		50%	49%		100%

Performance Framework for malaria NSP 2014 to 2020

ITEMS	INDICATORS	Regions	Value	Year	Source	ANNUAL TARGETS						
						2014	2015	2016	2017	2018	2019	2020
						66%		77%		89%		100%
	Percentage of population in target areas sprayed with indoor residual spraying in the last 12 months	3	90%	2013	Administrative Records	91%	92%	92.50%	93%	94%	95%	
	Percentage of malaria case reduced in the IRS targeted areas from the 2012 cases	3	NA	2012	HMIS	42%	49%	55%	55%	60%	62.50%	
	Number and percentage of structures in targeted districts sprayed by indoor residual spraying in the last 12 months	3	98.5% (4399377/446752)	2012	Administrative Records	85% (2168183/2550804)	85% (8806834/10360981)	85% (9027004/10620005)	85% (9252679/10885505)	85% (9483997/11157643)	85% (9786548/11513586)	
	Number of districts implementing IRS	3	100% (7/7)	2012	Administrative Records	100% (29/29)	100% (40/40)	100% (50/50)	100% (50/50)	100% (50/50)	100% (50/50)	
	Percentage of targeted breeding areas which received appropriate larvicides		NA	2013	Situation Analysis	70%		75%		85%		85%
	Percentage of pregnant women who received 3 doses of intermittent preventive treatment for malaria during ANC visits during their last pregnancy	All	NA	NA	DHS /MICS	50%		65%		70%		80%

Performance Framework for malaria NSP 2014 to 2020

ITEMS	INDICATORS	Regions	Value	Year	Source	ANNUAL TARGETS						
						2014	2015	2016	2017	2018	2019	2020
						66%		77%		89%		100%
	Percentage (%) of pregnant women on Intermittent preventive treatment (at least three doses of SP) according to national policy	All	41.39%	2012	HIMS	50% (408281/ 816562)	55% (460337/ 836976)	60.7% (520745/ 857900)	65.5% (575973/ 879348)	70.4% (6634537/ 901331)	75.2% (694746/ 923865)	80% (757569/ 946961)
	Proportion of children aged 3-59 months treated under SMC	3	NA	NA	Adminis-trative records	80% (578385/ 722981)	80% (591884/ 739855)	80% 9605730/ 757162)	80% (619930/ 774912)	80% (634494/ 793118)	80% (649434/ 811792)	80% (664757/ 830947)
Objective 2: To provide parasitologic al diagnosis to all suspected malaria cases and provide prompt and effective treatment to 100% of	Percentage of children under 5 years old with fever in the last 2 weeks who received antimalarial treatment according to national policy within 24 hours of the onset of fever	All	42.00%	2011	MICS (Multiple Indicator Cluster Survey)	45%						
	Under five Case fatality rate (from 0.6 in 2012 to 0.41 by 2020)	All	0.60%	2012	HMIS	0.55%	0.53%	0.51%	0.48%	0.46%	0.43%	0.41%
	Percentage of suspected malaria cases that received a parasitological test(RDTs or microscopy)	All	38%	2012	DHIMS	70% (12,891,062/ 9,023,743)	75% (10,247,550/ 7,685,662)	75% (12,662,224 /9,496,668)	80% (11,798,604/ 9,438,883)	82% (11,304,278/ 9,269,508)	90% (9,797,152/ 8,817,437)	100% (6,957,561/ 6,957,561)

Performance Framework for malaria NSP 2014 to 2020

ITEMS	INDICATORS	Regions	Value	Year	Source	ANNUAL TARGETS						
						2014	2015	2016	2017	2018	2019	2020
						66%		77%		89%		100%
	Percentage of uncomplicated malaria cases (clinical) treated with ACT at health facilities.	All	84.00%	2013	DHIMS	75%	66%	57%	47%	38%	29%	20%
	Number and percentage of uncomplicated malaria cases (tested positive) treated with ACT at health facilities.	All	100%	2013	DHIMS	100% (4060684)	100% (3227978)	100% (3988601)	100% (3716560)	100% (3560848)	100% (3086102)	100% (2191632)
	Number of uncomplicated malaria cases among under 5 year children treated with ACT by community based health workers (CBA)	All	126,339	2013	DHIMS	129,179	264,817	407,156	556,446	712,947	730,771	749,040
	Proportion of health All facilities without stock-outs of key commodities during the reporting period (N= 3375 as at 2013)	All	99.00%	2013	DHIMS	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%

Performance Framework for malaria NSP 2014 to 2020

ITEMS	INDICATORS	Regions	Value	Year	Source	ANNUAL TARGETS						
						2014	2015	2016	2017	2018	2019	2020
						66%		77%		89%		100%
	Proportion of CBAs with NO reported stock out lasting more than one week of artesunate amodiaqine at any time during the past 12 months	All	87%	2012	DHIMS	90%	92%	94%	95%	97%	98%	99%
	Number of service providers from targeted public and private health facilities given refresher training on malaria control (case management etc.)	All	23250	2011	Training Reports	24000			15000			10000
	Number of staff trained in managing malaria control planning at all level	All	4	2012	Administrative records	4	4	4	4	4	4	4
	Number of meetings held by MICC and its subcommittee/ working groups	All	21	2012	Administrative records	21	21	21	21	21	21	21
	Number of corporate bodies who have adopted malaria control programmes	All	4	2012	Administrative Records	6	10	15	20	22	24	26
	Number of strategic partners (financial and technical) identified and collaborated with	All	10	2008	Administrative Records	100	120	140	140	140	140	140

Performance Framework for malaria NSP 2014 to 2020

ITEMS	INDICATORS	Regions	Value	Year	Source	ANNUAL TARGETS						
						2014	2015	2016	2017	2018	2019	2020
						66%		77%		89%		100%
Objective 4: To strengthen the systems for surveillance and M&E in order to ensure timely availability of quality, consistent and relevant malaria data at all levels by 2020	Number of Districts with functional M&E unit with data quality improvement teams.	All	10	2011	Administrative records	100	150	216	216	216	216	216
	Percentage (%) of health facilities submitting timely and complete reports (on malaria) to regional level	All	79%	2013	DHIMS	81.30%	83.60%	85.70%	88.10%	90.40%	92.70%	95%
	Promotion of research that informs the programmer in terms of policy and operational issues	All	2	2012	Administrative reports	6	8	6	6	6	7	8
	Number of sentinel sites established and functioning for epidemiological and insecticide monitoring	All	21	2011	Administrative reports	26	26	26	26	26	26	26

Performance Framework for malaria NSP 2014 to 2020

ITEMS	INDICATORS	Regions	Value	Year	Source	ANNUAL TARGETS						
						2014	2015	2016	2017	2018	2019	2020
						66%		77%		89%		100%
	Number of data sharing initiatives that promote evidence based decision making process on malaria control.	All	NA	NA	Administrative reports	2	2	2	2	2	2	2
Objective 5: To increase awareness and knowledge of the entire population on malaria prevention and control so as to improve uptake and correct use of all interventions by 2020	Quantities of ACSM materials(Manuals, posters, radio/TV spots, etc.) produced	All	12000	2012	Administrative Records	15000	14000	13000	12500	12000	12000	12000
	Percentage of people who know the cause of, symptoms of, treatment for or preventive measures	All	96%	2011	MICS 2011	96.70%		97%		97.6%		98%
	Number of mass media spots promoting key messages on malaria case management	All	6533	2011	Media tracking report - 2011	4000	3500	3000	3000	3000	3000	3000

7.2. TRACKING PROGRESS

The progress of the program throughout the implementation of the strategic plan will be tracked through routine surveillance systems and the integrated supportive supervisions.

In order to measure and analyze the success of the interventions in reaching set outcomes and targets, a set of annual and periodic indicators have been developed through consultations with all stakeholders. The indicators are important for measuring progress in the health sector's performance and have been informed by the country's long-term vision and strategic direction (Vision 2020, MDGs).

Malaria Programme Reviews will be undertaken annually and periodic performance indicators as well as process indicators will be assessed. Review reports will be produced and will be disseminated to all stakeholders with any required actions monitored by the M&E unit of MoH/GHS. Every year a malaria action plan will be developed in collaboration with partners and an annual malaria report will be disseminated. In addition, malaria quarterly review meetings will be conducted with partners to evaluate malaria implementation according to the malaria action plan.

7.3. MEASURING OUTCOME AND IMPACT

The Surveillance, Monitoring and Evaluation systems will use Health Management Information System (HMIS) routine data, as the main source of data, complemented by periodic surveys, rapid impact assessments and program reviews in measuring programme outcomes and impacts.

Improved health sector performance, increased access and utilization and quality are the outcome measures. Morbidity, mortality and socio-economic well-being are the impact measures.

During the period 2014-2020, population and health surveys such as MIS, DHS, MICS, and Health Facility Surveys (HFS) will be conducted supported by various Partners. In addition, various research institutions including Noguchi, The Universities, Kintampo, Dodowa, Navrongo and National Research and Development Department of the Ghana Health Service, will undertake studies on malaria specific areas.

CHAPTER EIGHT: PROGRAMME MANAGEMENT

8.0. INTRODUCTION

This section deals with governance, human resource capacity for planning and coordination as well as malaria commodity security. It also focuses on ensuring partnerships and collaborations are strengthened at the international and local levels as well as with the public and private sectors.

8.1. GOVERNANCE

The programme will continue to facilitate the effective functioning of the multi-sectorial Malaria Inter-Agency Coordinating Committee (MICC) to enhance governance, coordination, provision of guidance and updates on partners' activities. Membership covers all the key stakeholders (*Annex 3 and 4)*For the effective functioning of the committees, sub-committees have been formed for these areas: Malaria Case management, Malaria in Pregnancy, Communication, Vector Control Partnership, Resource Mobilization and Financial sustainability, Monitoring and Evaluation

National Malaria Control Program will provide leadership in setting the agenda for MICC in consultation with the chair. Regular updates on novel strategies and interventions for malaria control will be provided to members and a forum for discussion will be created using existing information channels.

The programme will continue to play a critical role in regional, sub-regional and cross-border initiatives and joint planning activities targeting malaria elimination in the ECOWAS sub-region. It will sustain collaboration with international partners in peer review conferences and workshops in knowledge sharing and learning.

The programme will endeavour to disseminate information both at national and international level in reports and peer-review journals.

8.1.1 Planning and implementation

The Malaria Strategic Plan 2014-2020 will provide strategic orientation of programme planning, implementation, monitoring and evaluation of all stakeholders involved in malaria control within that period. The programme will conduct mid-term and end term programme performance reviews to ensure that the implementation of malaria control activities is guided and informed by evidence. To create an enabling environment for implementation at all levels, availability of office space, equipment, accessories, utilities and transportation at the national level will be ensured. The programme will continue to provide technical

direction and leadership in the formulation, development and revision of malaria policies, strategies and detailed guidelines based on the NSP 2014-2020. Additional Technical assistance and guidance will be requested from relevant partners to support implementation and address areas of gaps when necessary. The overall assessment of the implementation will be detailed out in a comprehensive M&E plan.

8.1.2 Risk Management

Analysis of Risks and Proposed Mitigation

Implementation of this strategic plan will be subject to several risks, which will require timely and appropriate mitigation in order to avoid derailing the implementation of the plan. Table 7 presents a detailed analysis of the possible risks and proposed mitigation.

Table 7: Analysis of Risks and Proposed Mitigations: 2014-2020

Risk	Mitigation
Indoor residual spraying The most important risk to the programme is the worsening of Insecticide resistance. Currently there is evidence of pyrethroid resistance as well as emerging deltamethrin resistance. The IRS program focuses on carbamates and organophosphates, which are more expensive. Insecticide resistance may render classes of insecticides ineffective and neutralize the benefits of IRS.	Continue to do surveillance for insecticide resistance and use findings to inform choice of insecticides
Resistance also threatens the success of the programme by requiring rotation to more expensive insecticides. The high cost of these insecticides means that in a period of limited financing the IRS program may suffer and the full benefit of IRS may not be achieved.	This response will require the rotation of insecticide in spite of the increased cost. Need to either devote more funds to insecticides or seek new donor support for IRS
Long-lasting insecticide-treated nets The ITN programme is at risk of a decrease in its effectiveness because insecticides used in nets are pyrethroids Mosquitoes have a developed resistance to this as indicated by EIR studies by Noguchi	In spite of pyrethroid resistance, ITNs need to be used because of their physical barrierprotection and repellence. Limiting use of LLINs to areas not covered by IRS, will also improve ITN effectiveness.
The failure of net owners to sleep under their net is another area of risk to the ITN programme	Intensified and sustained education on the importance of sleeping under ITNs every night, can help decrease the misuse of nets

Analysis of Risks and Proposed Mitigations: 2014-2020

Risk	Mitigation
Case Management Provider behaviour is the most important risk to the case management programme. Despite continued drive to encourage testing before treating most providers give medications based on clinical symptoms. Non-adherence to negative test results is also a major risk since this leads to over-consumption and misuse of anti-malarials.	The NMCP, in collaboration with partner, has come up with guidelines and provided training in the new case management guidelines, to health care providers in all regions. This training needs to be repeated biannually to assure that the majority of clinical care providers have heard the message that testing should be done before a diagnosis of malaria is made and that the lab test results can be trusted. Using person-to person campaign will be explored
The rolling out of diagnosis to the community level using RDTs may be fraught with human capacity challenges. Also, shortages of RDTs may hinder the success The bundled Diagnostic Related Group (DRG) premium is of particular concern, since it doesn't encourage diagnosis before treatment. Currently, depending on level of health care, premium reimbursement is same, whether diagnosis with RDTs is done or not. This is a threat to appropriate case management ·	Results from operational research for expanding RDTs in chemical sho ps show th at it is feasible to use RDTs at community level. The NMCP began training pharmacists to conduct RDTs in their outlets and this will be expanded to include LCSs. Guidelines, algorithms and manuals will be developed to facilitate the capacity building NMCP will use the capacities of the Pri vate sector as evidenced by AMFm implementation, to expand access to RDTs and also address procurement bottlenecks to ensure regular supply of RDTs. NMCP together with ICD, will collaborate with NHIA to determine premium levels, which takes into consideration RDT testing. This will serve as motivation for testing before treatment
Surveillance, monitoring and evaluation The collection of data via DHMIS 2 is threatened by incompleteness and timeliness.	Districts will be trained to capture data for completeness. A reward system for completeness and timeliness needs to be established to encourage districts to report data completely and timely.
Lack of District Level data to inform targeting of interventions to address district specific malaria control needs	Support for population based surveys such as DHS and subsequent inclusion of a malaria model will help obtain district level data. Effort will be made to collaborate with partners working in various districts of the country to obtain data pertaining to those districts

Analysis of Risks and Proposed Mitigations: 2014-2020

Risk	Mitigation
Programme Management Funding Reliance on external donor funding puts this plan at risk of not fulfilling its accelerated malaria control efforts especially with the Global Fund's new funding models that has drastically reduced funding to malaria control in Ghana.	Develop a financial sustainability plan that will help to mobilize resources domestically and also from donors who are still interested in helping to sustain the gains made in malaria control in Ghana Lobby Parliament and encourage corporate Ghana to invest in malaria based on an investment case.
Procurement issues The plan will be at risk by frequent delays in procurement. This results in stock -outs of RDTs and SP .	The MOH has in the past helped to provide supplies in times of shortages, but there is the need to identify funding for emergency procurements to avoid long periods of shortages.
Human Resource This accelerated control plan rides on the success of the health system but there are short ages of skilled staff at various	Include malaria training in pre-service curriculum and undertake planned refresher training for staff at various levels.

8.2. HUMAN RESOURCE

The programme will update knowledge and skills mix to create a critical mass of technical personnel among staff at the national level through short courses, conferences, exchange programmes, coaching and mentoring. The malaria control teams in the regions, districts and sub-districts as well as public and private care providers, will be supported to improve their skills and competences.

8.3. PROCUREMENT AND SUPPLY MANAGEMENT SYSTEM

Procurement and supply management activities are fundamental to program performance. In order to ensure effective and quality-assured health products, a set of policies and principles on procurement and supply management to guide the program will aim at:

- Supporting the timely procurement of quality-assured health products in adequate quantities;
- Attaining cost efficiencies in procurement and supply management activities;
- Ensuring the reliability and security of distribution systems;
- Encouraging appropriate use of health products; and
- Enabling the monitoring of all procurement and supply management activities

The programme will support efforts to strengthen the implementation of the commodity security plan for malaria developed in 2013 and also build capacities in supply chain systems

and collaborate with relevant departments and partners to ensure value for money. There is the need to improve geographical access to good quality, efficacious and cost effective treatments in both public and private sector channels. It is important to also formalise private sector's role in supply management as well as implement innovative financing mechanisms including subsidies to ensure accessibility of malaria treatments in all sectors. Drug and therapeutic committees will be supported to ensure the monitoring of rational use of medicines including antimalarials.

Various strategies for ensuring rational use of medicines would also be employed. Coordination of planning between PSM and programmatic activities will be enhanced. The program, in-collaboration with PSM stakeholders, will support measures to ensure Quality monitoring and, pharmacovigilance.

There are constrains in PSM systems such as: timely planning & efficient procurement, storage in periphery, last mile distribution, decentralization, coordination of diagnosis and treatment. Efforts will be made to support stakeholders to strengthen the system.

Priority will be given to PSM and System Strengthening to improve on visibility to respond to program needs as a cross cutting component.

8.4. FINANCIAL RESOURCE MANAGEMENT

The current financial crisis has made future commitments uncertain, especially from the Global Fund, the main donor for malaria. This funding crisis represents a window of opportunity for governments of malaria endemic countries like Ghana to invest more in health and make their own contributions towards healthy populations.

There is also room for more coordination of plans and budgets on malaria prevention, control and management among all stakeholders. The financial software being used by the NMCP (Great Plains) at the national level is good though its current utilization is sub-optimal.

The programme will prioritise mobilisation of domestic and external resources to attain national malaria targets and adhere to prudent financial management systems.

Strategies

- Conduct Regular cross border communication (correspondences, meetings, workshops) on malaria prevention and control strategies
- Continue to strengthen the capacity of Regional Health Teams, District and Sub-district teams to coordinate RBM activities and ensure effective management, supervision and monitoring of service delivery in the region using opportunity of Leadership Development Programmes
- Continue to provide support to ensure effective functioning of MICC and all technical working groups of the program

- Disseminate widely any revision of policies and guidelines in malaria especially to clinical health staff
- Strengthen coordination with PSM Partners and MOH to work on defining a Pharmaceutical System Strengthening Strategy (with costed implementation plan and short/long term priorities) aligned with HSS plan
- NMCP is taking steps to procure a Server to be able to link the computer to the server to make daily transaction entries and also save data for easy retrieval and analysis.

8.5. PARTNERSHIP

Strengthening Partnerships for Impact

NMCP will foster functional partnerships and mechanisms with and between development agencies (bilateral and multilateral), ministries (like education, agriculture, environment, housing departments), NGOs, private sectors, informal sectors, traditional health providers and the community. It will also identify new partners for collaboration and lead the process to mobilize required resources for meeting programmatic targets.

Partnership Within Health Sector

There is an intra-sectoral collaboration with units and departments within the Ghana Health Service and Ministry of Health in the implementation of interventions. For instance:

- Family Health Directorate in Home-Based Care and Malaria In Pregnancy
- Surveillance Unit: use the Community-based surveillance volunteers for malaria activities like door-to-door distribution and follow-up of pregnant women
- Ghana National Drug Program on development of Standard Treatment Guidelines and Essential Medicines List.
- Health Promotion Department on SBCC/IEC and Advocacy
- Institutional Care Division for quality assurance and clinical support for malaria case management
- Health Research Unit for setting research agenda to include malaria issues, research coordination and uptake of research recommendations into policy.

Partnership With Civil Society, Corporate Bodies, Private Sector

The NMCP recognizes the efforts of the non-governmental and civil society organizations in implementing malaria activities at the grass root levels. NMCP works with registered members of the Ghana Coalition of NGOs in malaria, to undertake Community mobilization, which is one of the key components of BCC strategies in Ghana.

NGOs will undertake community level sensitization on malaria interventions using the available systems (through durbars, traditional and opinion leader's orientations, market,

churches, mosques, one-on-one and group education) to educate community members. They liaise with the district health directorate to do malaria testing for community members and treat positive cases.

The private sector in Ghana has worked with the NMCP based on the understanding that their competitiveness and economic returns depends on their ability to address the needs and challenges of the communities in which they operate. Furthermore, the NMCP collaborates with corporate bodies such as mining companies, financial institutions, and telecommunication providers to provide malaria control services.

By this they are able to generate a positive social impact while generating the return on investment expected by shareholders. Therefore the private pharmaceutical sector served as the front liners in the implementation of the affordable medicines facility for malaria and continues to do so under the Private Sector Co-payment Mechanism. The NMCP will expand the collaboration with private sector by encouraging corporate Ghana to invest in malaria through the establishment of workplace malaria programs or adopting communities and supporting them to improve their malaria indicators.

Access to healthcare in Ghana is both public and private and Private clinical practice has helped to bring health care to the doorstep of the population even to where the public sector is not able to reach. The NMCP will continue to collaborate to bring quality health care to the population where it is needed.

Additionally, the programme will cooperate and collaborate with relevant research institutions and departments to pursue agreed-upon national research agenda, including, the establishment and maintenance of sentinel sites.

However, there still remains the need for more partners to be engaged. Partners will consistently be engaged using all available communication channels to provide regular updates on activities of the program.

CHAPTER NINE: BUDGET AND FINANCIAL PLAN

Budget figures for the various years were arrived at, by constructing a detail assumptions sheet, which includes unit costs, quantities, and total amounts. In addition to this, both historical cost and activity based costing (ABC) methods were also used to calculate the yearly amount in the summary table. *(Table 8)*

Table 8: Budget summary by Objective and interventions

COST CATEGORY BY OBJECTIVES

OBJECTIVES	ACTIVITY	2014	2015	2016	2017	2018	2019	2020
Objective 1	**To protect at least 80% of the population with effective malaria prevention interventions by 2020**							
1.1 & 1.2	Distribution of LLINs through campaigns and 1.2 Continous distribution of LLINs	41,981,093.83	34,187,845.97	15,479,816.19	47,007,321.63	47,674,981.99	14,460,753.26	96,495,631.07
1.3	Indoor residual spraying for Areas with high parasite prevalence	22,953,952.72	23,991,895.17	32,094,773.06	32,509,592.27	35,773,508.39	37,304,571.68	37,898,991.07
1.4	Larval source Management	46,837,610.00	46,817,825.00	46,895,761.25	47,204,163.56	46,919,937.17	46,830,750.96	47,010,431.00
1.5	Entomological and Resistance Monitoring and Management	246,800.00	496,112.00	561,512.00	309,662.00	329,627.00	351,588.50	375,746.15
1.6	Seasonal Malaria Chemoprevention (SMC)	3,396,937.96	3,508,339.68	3,625,124.86	3,747,563.55	3,875,940.41	4,012,205.65	4,151,726.11
1.7	Prevention of Malaria in Pregnancy (MIP)	4,757,132.72	4,690,962.58	4,359,675.87	4,667,564.96	4,729,780.19	3,843,841.44	4,776,303.04
Total : Objective 1		**120,173,527.23**	**113,692,980.40**	**103,016,663.23**	**135,445,867.97**	**139,303,775.14**	**106,803,711.48**	**190,708,828.43**
Objective 2	**To provide parasitology diagnosis to all suspected malaria cases and provide prompt and effective treatment to 100% conf irmed malaria cases by 2020**							

COST CATEGORY BY OBJECTIVES

OBJECTIVES	ACTIVITY	2014	2015	2016	2017	2018	2019	2020
2.1	Provide quality malaria diagnosis to all suspected cases at all levels	9,178,437.52	6,839,780.21	8,060,912.81	6,374,394.50	8,104,063.72	6,170,395.28	9,018,569.90
2.2	Strengthen health worker capacity for malaria case management	793,000.00	171,300.00	290,280.00	714,213.00	314,635.80	209,036.58	866,280.61
2.3	Management of uncomplicated and severe malaria at health facilities	13,494,107.59	10,596,084.05	12,874,856.67	11,636,739.36	11,813,329.80	10,502,143.40	7,974,666.08
2.4	Integrated Community Case Management (iCCM)	1,250,202.54	1,964,977.20	3,063,474.32	4,113,178.03	5,528,785.60	8,725,692.62	12,131,532.15
2.5	Improve access to diagnosis and treatment in the private sector	22,678,915.00	30,790,698.53	30,431,767.34	30,631,124.67	30,123,116.77	30,765,794.95	31,080,715.88
Total : Objective 2		**47,394,662.64**	**50,362,839.98**	**54,721,291.14**	**53,451,649.56**	**55,883,931.69**	**56,373,062.83**	**61,071,764.62**
Objective 3	**To strengthen and maintain capacity for programme management and partnership coordination to achieve malaria programme objectives at all levels of the health care system by 2020**							
3.1	Programme Management, leadership and Governance	83,417,466.68	96,783,155.43	125,317,115.52	143,770,932.17	143,423,644.05	143,455,041.52	143,520,698.86
3.2	Improve capacity for programme management at all levels	528,525.00	420,797.00	448,760.60	194,562.38	223,287.00	202,251.35	229,363.92
3.3	Facilitate biannual Malaria Interagency Coordinating Committee (MICC) meetings	11,500.2 0	12,075.21	12,678.97	13,312.92	13,978.56	14,677.49	15,411.37
3.4	Advocate at corporate and parliamentary levels for increase resource allocation to malaria control activities	84,000.00	182,700.00	191,835.00	201,426.75	211,498.09	222,072.99	233,176.64

COST CATEGORY BY OBJECTIVES

OBJECTIVES	ACTIVITY	2014	2015	2016	2017	2018	2019	2020
3.5	Develop and implement a financing sustainability plan for accelerated malaria control	87,000.00	90,350.00	93,867.50	97,560.88	101,438.92	85,510.86	76,386.50
3.6	Ensure efficient and effective procurement and logistics management	45,000.00	47,250.00	49,612.50	52,093.13	54,697.78	57,432.67	106,250.44
3.7	Ensure alignment with West Africa Health Organization Malaria Strategic Plan and cross-border collaboration	108,399.92	109,819.92	61,310.91	112,876.46	64,520.28	66,246.29	118,058.61
Total : Objective 3		**84,281,891.80**	**97,646,147.56**	**126,175,181.01**	**144,442,764.68**	**144,093,064.68**	**144,103,233.18**	**144,299,346.34**
Objective 4	**To strengthen the system for the surveillance and monitoring and evaluation in order to ensure timely availability of qua lity,consistent and relevant malaria data at all levels by2020**							
4.1	Conduct Operations Research to inform programme direction	801,800.00	499,980.00	671,478.00	797,975.80	779,788.38	684,367.22	737,803.94
4.2	Enhance routine surveillance and use	$1,797,123	$1,338,426	$2,141,526	$1,481,333	$2,398,570	$1,593,084	$2,799,625
4.3	Enhance coordinated monitoring of programme progress	100,554.00	100,554.00	100,554.00	100,554.00	100,554.00	100,554.00	100,554.00
4.4	Support population based surveys	750,000.00	100,000.00	1,980,500.20	120,000.00	-	-	-
4.5	Conduct mid and end of term reviews	232,900.00	232,900.00	364,545.00	256,772.25	469,610.86	283,091.41	297,245.98
4.6	Rapid Response to Malaria emergency situations	-	30,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00
4.7	Improve malaria data management and quality	650,960.00	878,193.64	1,034,831.60	966,874.76	1,143,602.24	905,842.46	1,209,046.71
4.8	Dissemination of survey and surveillance report	229,154.00	131,787.50	138,226.88	244,050.88	143,308.88	146,237.08	267,653.84

COST CATEGORY BY OBJECTIVES

OBJECTIVES	ACTIVITY	2014	2015	2016	2017	2018	2019	2020
Total : Objective 4		**4,562,491.00**	**3,311,841.14**	**6,441,661.48**	**3,977,561.09**	**5,045,434.77**	**3,723,176.38**	**5,421,929.16**
Objective 5	**To increase awareness and knowledge of the entire population on malaria prevention and cont rol so as to improve uptake and correct use of all interventions by 2020**							
5.1	Develop a comprehensive national malaria communcation strategy	45,000.00	60,000.00	55,000.00	110,000.00	76,550.00	73,205.00	130,525.50
5.2	Advocacy for sustained malaria control	306,020.00	324,321.00	343,837.05	135,449.15	146,214.61	61,287.04	64,351.39
5.3	Advocacy for conforming to test	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
5.4	Sustained education on malaria prevention at all levels	868,000.00	954,800.00	1,050,280.00	1,155,308.00	1,270,838.80	1,317,690.00	1,369,226.32
5.5	Community mobilization to enhance uptake of malaria interventions	1,286,860.00	1,246,532.00	1,318,114.00	1,394,200.64	1,475,109.71	1,539,076.22	1,606,367.56
Total : Objective 5		**2,510,880.00**	**2,590,653.00**	**2,772,231.05**	**2,799,957.79**	**2,973,713.12**	**2,996,258.26**	**3,175,470.77**
GRAND TOTAL ($)		**258,923,452.68**	**267,604,462.08**	**293,127,027.90**	**340,117,801.09**	**347,299,919.38**	**313,999,442.13**	**404,677,339.32**

CHAPTER TEN: RESOURCE MOBILIZATION

In recent years there has been tremendous improvement in marshalling the financial resources, relevant expertise and necessary partnerships to improve health outcomes in Ghana. However, dwindling global resources, increased competition for scarce resources, and new demands for healthcare as a result of changing epidemiology and increased human mobility within and between countries means that Ghana needs to explore multiple sources for financial and non-financial resources.

9.1. BUDGET GAP ANALYSIS (2014-2020)

The financial gap analysis taking into account the sources of funding is done to facilitate discussion for resource mobilization. ***(Table 9 and 10)***

Table 9: Summary of Financial Gap Analysis

Year	Amount required	Government of Ghana	Ghana's Private Sector	Other Sources (PMI,UNICEF /DFID/ WHO	Total Amount Available	Funding gap
2014	258,923,452.68	65,960,981.00	840,000.00	40,708,899.00	107,509,880.00	151,413,572.68
2015	267,604,462.08	100,806,127.40	840,000.00	60,878,887.00	162,525,014.40	105,079,447.68
2016	293,127,027.90	124,594,204.90	840,000.00	42,974,185.00	168,408,389.90	124,718,638.00
2017	340,117,801.09	144,054,463.70	840,000.00	43,877,769.15	188,772,232.85	151,345,568.24
2018	347,299,919.38	159,399,328.00	840,000.00	52,230,883.80	212,470,211.80	134,829,707.58
2019	313,999,442.13	191, 279,194	840,000.00	53,275,501.47	245,394,695.47	68,604,746.66
2020	404,677,339.32	229,535,033.00	840,000.00	55,939,276.55	286,314,309.55	118,363,029.77
TOTAL	**2,225,749,444.58**	**824,350,138.00**	**5,880,000.00**	**349,885,401.97**	**1,371,394,733.97**	**854,354,710.61**

9.2. DONORS MAPPING

The Vision, Mission, goals and strategic priorities of the NMCP and the health sector will inform the resource mobilization process and activities. Effort will be made to ensure that the integrity of the Programme and systems are always respected in the process of resource mobilization and implementation.

Objectives:

- To ensure availability of adequate resources to execute planned activities in order to achieve targets set in the strategic plan

- To work to increase the NMCP core fund (Global Fund Grant) by developing grant applications that reflect the strategic vision and direction of the Program as well as the overall health needs of the population of Ghana

Strategies

- To institutionalize Resource Mobilization as a key function
- Develop a financing sustainability strategy for malaria prevention, control and management in Ghana to address threats to sustainability.
- Develop innovative funding mechanisms to improve domestic investments in malaria control including mobilizing funds from the corporate/private sector.
- Develop a financial risk management plan.
- Identify Partners committed to support various activities of malaria control and prevention
- Make efforts to solicit local funding by identifying private sector partners that have potential to influence and shape malaria-friendly policies and practices.
- Work with IMACC to communicate resource needs and use of funds and the benefits to society.
- Develop a resource mobilization plan
- Establish a broader funding base to include domestic, bilateral and multilateral sources

Table 10: Summary of potential donors supporting the NMCP

YEAR	DFID/UNICEF	WHO	PMI/USAID	TOTAL PER YEAR
2014	5,208,899.00	300,000.00	35,200,000.00	40,708,899.00
2015	4,258,887.00	300,000.00	56,320,000.00	60,878,887.00
2016	2,674,185.00	300,000.00	40,000,000.00	42,974,185.00
2017	1,577,769.15	300,000.00	42,000,000.00	43,877,769.15
2018	930,883.80	300,000.00	51,000,000.00	52,230,883.80
2019	977,427.99	300,000.00	51,998,073.49	53,275,501.48
2020	1,026,299.39	300,000.00	54,612,977.18	55,939,276.57
TOTAL	**16,654,351.33**	**2,100,000.00**	**331,131,050.67**	**349,885,402.00**

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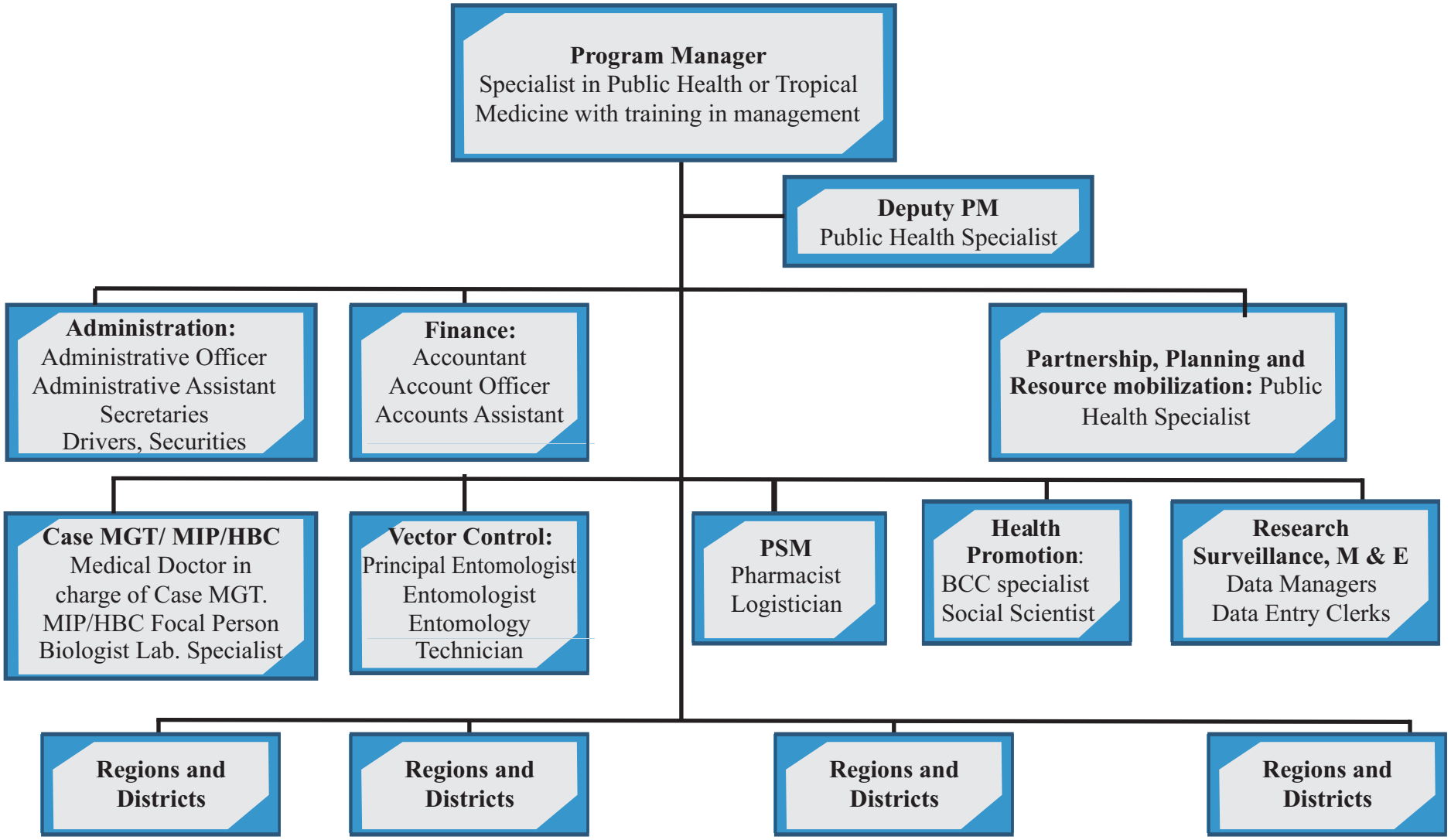
ANNEXES

Annex 1: Resource Persons

NAME	ORGANIZATION
Dr.Kharchi Abd errahmane	WHO, AFRO
Dr. Freddie Masaninga	WHO, ZAMBIA
Dr. Aregawim W. Maru	WHO, GENEVA
Dr. Sureyya Hornston	USAID
Dr.Phillip Ricks	PMI/USAID
Dr Kyei-Faried	DCU, GHS
Mrs Martha Gyansah-Lutterodt	MOH/GHS
Dr. Felicia Owusu-Antwi	WHO, GHANA
Dr. Samuel Dadzie	NMIMR
Mr. Wahjib Mohammed	NMCP/GHS
Dr. Dinah Baah-Odoom	ICD/GHS
Mr. Frank Amoyaw	ANGLOGOLD ASHANTI
Ms. Naa-Korkor Allotey	NMCP/GHS
Dr. Constance Bart-Plange	NMCP/GHS
Dr. Philip Amoo	KORLE-BU TEACHING HOSPITAL
Dr. Keziah L. Malm	NMCP/GHS
Mrs. Aba Baffoe-Wilmot	NMCP/GHS
Mr. James Frimpong	NMCP/GHS
Mr. Godson Kofi Osae	NMCP/GHS
Mr. Joel Naa Balbaare	NMCP/GHS
Mr. Francis Ocloo	NMCP/GHS
Mr. Kwame Dzudzorli Gakpey	NMCP/GHS
Mrs. Eunice Mintah-Agyemang	NMCP/GHS
Dr. Felicia Amoo-Sakyi	NMCP/GHS
Mrs. Ivy Forson	NMCP/GHS
Dr. Beatrice Heymann	PPME/GHS
Ms. Vivian N.A. Aubyn	NMCP/GHS
Mr. Sylvester Segbaya	AGAMAL
R. Hemang Ntiamoah	INTERNAL AUDIT DEPARTMENT-GHS
Mrs. Aimee Akotey	KBTH-PHD
Mr. Nicholas Afrane Osei	NHIA-CLAIMS UNIT
Dr Hari Banskota	UNICEF

Annex 2: Organizational Structure For Malaria Control Program



Annex 3: Terms of Reference For Malaria Inter-Agency Coordinating Committee

The MICC is the national technical coordinating agency for the national malaria control programme. The MICC's role is to advocate for and mobilize resources for malaria control and elimination in Ghana, agree on priority areas of investment, set national targets based on global and Roll Back Malaria targets for malaria control and elimination, support coordination of implementation activities, and monitor and review performance and progress.

TERMS OF REFERENCE

1. Ensure the functioning of the MICC oversight committee and all sub committees
2. Review the existing TOR for the MICC and all the Sub-comittees.
3. Ensure quarterly meeting of the various sub committees and ensure the submission of reports to MOH through the MICC.
4. Develop modalities to strengthen Partnership especially with the private sector and the Teaching Hospitals (Identify 'neglected partners' for collaboration).
5. Ensure malaria control activities are included and prioritized in the regional health plans.
6. Mobilize resources and ensure sustainability for implementation of MPR recommendations.
7. Review the current research agenda.
8. Continue to engage the local manufacturers and Private sector to achieve WHO prequalification for antimalaria production.
9. Develop a financial sustainability plan for malaria commodities (to minimise the overdependence of the programme on donor funding).
10. Solicit Partners commitment to the MPR business plan and ensure ring fencing of malaria commodities in the GHS/MOH budget.
11. Facilitate periodic scientific conferences and expert consultations where the need arises.

Annex 4: Malaria Inter-Agency Coordinating Committee (MICC) Members

	POSITION	ORGANISATION/ASSOCIATION /AGENCY
1.	Hon. Minister of Health	Ministry of Health
2.	Director General	Ghana Health Service
3.	Director	Public Health Division-Ghana Health service
4.	Program Manager	National Malaria Control Program - Ghana Health service
5.	Chair	Country Coordinating Mechanism
6.	Chair	Malaria Inter-agency Coordinating Committee (MICC)
7.	Director	Ghana Education Service (GES/SHEP)
8.	Representative	Ministry of Local Government
9.	Representative	Ministry of Food and Agriculture
10.	Representative	Ministry of Gender and Social protection
11.	Representative	Ministry of Finance
12.	Representative	Quasi Government Health Facilities
13.	Representative	Health Training Institutions
14.	Representative	Noguchi Memorial Institute for Medical Research
15.	Representative	Komfo Anokye Teaching Hospital
16.	Representative	KorleBu Teaching Hospital
17.	Representative	Tamale Teaching Hospital
18.	Representative	Traditional Leader
19.	Executive Director	Manufacturers of Antimalaria (Private Sector)
20.	Representative	First Line Buyers (Private Sector)
21.	Representative	Food and Drug Authority
22.	Representative	National Health Insurance Authority
23.	Representative	Environmental Protection Agency

Malaria Inter-Agency Coordinating Committee (MICC) Members

	POSITION	ORGANISATION/ASSOCIATION /AGENCY
24.	Representative	Pharmacy Council
25.	Representative	Ministry of Local Government and Rural Development
26.	Representative	Coalition of NGOs Against Malaria
27.	Representative	Media against Malaria
28.	Chair	Society of Private Medical and Dental Practitioners
29.	Representative	AMMREN
30.	Country Rep	PM/USAIDI
31.	Country Rep	DFID
32.	Country Rep	World Bank
33.	Country Rep	World Health Organization
34.	Country Rep	UNICEF
35.	Chief Pharmacist	Ministry of Health
36.	Director	Anglogold Ashanti Malaria Program
37.	Representative	Labiofam Project
38.	Director	Traditional and Alternative Medicines Department (TAMD-MoH)
39.	Representative	GCPS
40.	Chairperson	Technology and innovation Assessment Subcommittee
41.	Chairperson	Malaria Case Management Subcommittee
42.	Chairperson	Malaria Vector Control Subcommittee
43.	Chairperson	National Malaria Communications Subcommittee
44.	Chairperson	Monitoring and Evaluation Subcommittee
45.	Chairperson	Partnership Subcommittee
46.	Chairperson	Resource Mobilization and Financial Sustainability Subcommittee
47.	Representative	GCNM

Annex 5: Malaria Control Subcommittees

CASE MANAGEMENT	MALARIA IN PREGNANCY	MALARIA DIAGNOSTICS	MALARIA VECTOR CONTROL OVERSIGHT (MaVCOC)	NATIONAL MALARIA COMMUNICATION
• University of Ghana Hospital • WHO • Family Health Division (FHD) • PMI/USAID • Noguchi • UNICEF • Private sector • Rep. Teaching Hospital) • Rep. Regional Health Directorate • Pharmaceutical Society of Ghana • Pharmacy Council • National Public health Reference Laboratory • Director, Traditional and Medical Department • Institutional Care Department (GHS) • Rep, Paediatrician • NMCP rep,	• NMCP/GHS • Plan Ghana • JHPEIGO • Private sector • Food and Drugs Authority • Family Health Division • UNICEF • WHO • Rep, O & G • Rep. Private Sector	• NMCP (2 reps) • Public Health and Reference Laboratory (PHRL), • Health Research Department • W.H.O • Regional Hospital • Pharmacy Unit • Central Lab, Korle-Bu), • Stores and Supply, M.O.H), • Food and Drugs Authority • University Hospital, Legon), • Head, Ghana National Drugs Programme • Ghana Coalition of NGOs), • Noguchi Memorial Institute for Medical Research • JSI/DELIVER • Head Clinical Laboratory Unit, ICD-GHS) • Malaria Care	• WHO • NMCP/GHS • Abt Associates • Anglogold Ashanti • Noguchi Memorial Institute of Medical Research • EPA • PPRSD/MOFA • PPME/MOH • PMI/CDC • Labiofam • Networks • Private Sector Vector Control Company	• NMCP • GHS Health Promotion Unit • UNICEF representative • WHO representative • Ghana Coalition of NGOs in Malaria • DFID rep • GHS Public Relations Unit • Media Advocacy Network for Malaria • PMI/USAID • JHU/VOICES • AngloGold Malaria Programme • Media in Malaria Rep

Annex 5: Malaria Control Subcommittees

SURVEILLANCE, MONITORING AND EVALUATION WORKING GROUP	CO-PAYMENT TASK FORCE	MALARIA VACCINE TECHNICAL WORKING GROUP	INTEGRATED COMMUNITY CASE MANAGEMENT COORDINATING
• School of Public Health/University of Ghana • NMCP/GHS • USAID/PMI • Ghana Statistical Service • PPME/CHIM/GHS • PPME/MOH • ICD/GHS • WHO • EPI • HRU/GHS • UNICEF • World Bank	• Government – MOH, MOTI, MOFEP, CCM, NHIA, NMCP • FLB representative • Pharmacy Council • Society of Private Medical and Dental Practitioners • Pharmaceutical Society of Ghana • Community Practice Pharmacists Association • Licensed Chemical Sellers Representative • School of Public Health, UG • Food and Drugs Authority • NGOs in Malaria representative • WHO representative • Other Partners – UNICEF, PMI	• School of Public Health, Legon • NOGUCHI • SMS, KNUST • School of Public Health, Legon • Public Health Division, GHS • NMCP, GHS • EPI, GHS • Director, DCU • Director, Surveillance Department • KHRC • Food and Drugs Authority • UNICEF' • NMCP, GHS • WHO • Institute of Scientific and Social Economic Research • 2 Reps of Parliamentary select committee on health	• NMCP/GHS • Plan Ghana • PPME- GHS • PPME- MOH • Child Health Coordinator • Health Promotion Unit/ Family Health Division • Malaria Care • UNICEF (2 reps) • WHO (2 reps) • JHPIEGO • World Vision • Coalition of NGOs in Malaria rep

Annex 6: Partner Mapping

AREAS OF OPERATION	PARTNER
VECTOR CONTROL	USAID/PMI; AGAMAL; WHO; DFID; UNICEF
CASE MANAGEMENT	PMI/USAID; DFID; UNICEF; WHO; NHIA; JHIPIEGO LOCAL PHARMACEUTICAL MANUFACTURERS REGULATORY AGENCY
TECHNOLOGY AND INNOVATION	NMIMR; KCCR; KBTH; SPH, HEALTH RESEARCH INSTITUTIONS -GHS (KHRC, DHRC, NHRC) KNUST-COMMUNITY HEALTH POTENTIAL-BILL & BELINDA GATES, JOHN HOPKINS, SWISS TPH, MMW, PATH
RESOURCE MOBILIZATION	ALL LOCAL AND INTERNATIONAL PARTNERS MENTIONED
REGULATION AND COMPLIANCE	PHARMACY COUNCIL, FOOD AND DRUGS AUTHORITY, ENVIRONMENTAL PROTECTION AGENCY, GHANA STANDARDS AUTHORITY, MEDICAL AND DENTAL COUNCIL, HEALTH FACILITY REGULATORY AGENCY
COMMUNICATION	WHO, UNICEF, USAID, LOCAL NGO, CIVIL SOCIETY, PRINT AND ELECTRONIC MEDIA PARTNERS, AFRICAN MEDIA AND MALARIA RESEARCH NETWORK,
MONITORING AND EVALUATION	USAID/PMI, AGAMAL, WHO, DFID, UNICEF WORLD BANK, MOH-PPME, GHS-PPME, FAMILY HEALTH, EPI, UG -SPH, NMIMR, KCCR, FOOD AND DRUGS AUTHORITY, ENVIRONMENTAL PROTECTION AGENCY, NMIRC, NGOS, REFERENCE LAB. K, BU. HEALTH RESEARCH INSTITUTIONS -GHS GHANA STATISTCAL SERVICE.

Annex 7: Malaria Program SWOT for Various Interventions

Case Management			
Strengths	***Weakness***	***Opportunities***	***Threats***
• Ghana has a National Drug Policy that supports drug regulation over its importation, safety, distribution, storage, sale, and pharmacovigilance. • The cost of medicines is either covered by the National Health Insurance System or paid out-ofpocket. • Anti-malarial drugs are generally import tax reduction as a general practice. • Training programmes are conducted for all relevant health care providers at all levels of service delivery including Licensed Chemical Sellers, Medical Counter Assistants, pharmacists as well as community workers to understand and implement the policy.	• Low level of testing for malaria and poor adherence to test results by Prescribers • Irrational use of Artemisinin Based Combination Therapy • High level stock of monotherapies, including artemisinin monotherapies • Lack of funding for implementation of ARI and diarrhoea components of Home Based Care • Weak pharmacovigilance system for antimalarials	• Affordable medicines facility strengthening collaboration with Private-public sector in activities in scale up with Private sector outlets • Keen interest by Partners in provision of logistics for diagnostics	• Parasite resistance to recommended anti-malaria is as result of irrational use
Malaria in Pregnancy (MIP)			
• MIP activities incorporated into Reproductive Health activities • Low cost of Sulphadoxine-Pyrimethamine (SP)	• Weak defaulter tracing system • Poor documentation of IPTp activities • Reluctance of practitioners to use the recommended medication during the first trimester because of the side effects of quinine • Weak pharmacovigilance for SP Inadequate logistics for • G6PD lab testing prior to SP administration Irregular supply of SP	• High ANC coverage	Development of resistance to SP

Malaria Program SWOT for Various Interventions

Strengths	*Weakness*	*Opportunities*	*Threats*
Vector control			
• Establishment of a Malaria Vector Control Oversight Committee (MaVCOC) under the leadership of NMCP • Vibrant national LLIN committee including health partners • Sharing of existing structures with in areas of operation other partners (MOFA, MMDAs) • Use of Health Facilities, RCCs, MMDAs, Traditional leaders, communities to increase access in mass LLINs distribution • Insecticides selection is well regulated and based on strict adherence to international standards	• Inadequate storage facilities and distribution logistics for IVM commodities • Bottlenecks in procurement procedures resulting in serious delays • Inadequate collaboration, coordination and capacity for vector surveillance and insecticide monitoring and the district level unable to record batch numbers (OIG Report, 2012)	• Continual commitment of support of health partners to the IVM policy and implementation • Local communities' involvement in planning and implementation of strategies and in providing spray men and owning the interventions	• Development of insecticides resistance due to large scale application of insecticides in other sectors • Over Dependence on external funding with minimal Government commitment
	Procurement Supply Management		
• Availability of Public Procurement Law, Act 663 of 2003 that guides the procurement process • Establishment of system of warehousing, transport system and storage at central, regional and district levels. • Provision of 3.5 tonne trucks for the regions and two (2) No. 10 tonner Haulage Trucks for the CMS for schedule delivery system.	• Limitation of Local manufacturers in production of anti-malarial • Absence of a Bioequivalence Centre, for locally produced medicine to attain WHO prequalification standards. • Lack of consumption data resulting in poor Quantification and LMIS at the CMS, RMS	• On-going expansion in existing IT capacities alongside improvement in access to the Internet. • The Early Warning System being piloted in over 200 health facilities in Ghana through the use of mobile phones • Opportunities to improve LMIS using the New Supply Chain Master Plan, SCMP (MoH in 2012) • Government and partner support for the implementation of the reforms proposed in the SCM	

Malaria Program SWOT for Various Interventions

Strengths	*Weakness*	*Opportunities*	*Threats*
• Refurbished six (6) Regional Medical Stores by NMCP through GF to improve commodity storage • Availability of Quality assured and affordable ACTs across all sectors • Quarterly End Use Evaluation or surveys done by USAID in collaboration with GHS/NMCP provides a platform for improving commodity security. • NGOs and Faith Based Organizations (FBO) acting as important sources of medicines supply and distribution. • Collaboration of FDA with supply and distribution. with funding from PMI to conduct quality studies and post-marketing surveillance on drugs including antimalarials. • The Ghana Standards Board and Food and Drugs Authority register and test all foods and medicines including anti-malarials	• Inadequate Pre -or post-shipment inspection for most commodities. • No national reference laboratory • Inventory management soft wares at the various levels not aligned with the Corporate M supplies software • Quantification efforts not being strictly followed to inform actual procurements. • Absence of thermometers at regional/district for monitoring temperatures in the stores.		
Monitoring And Evaluation			
• DHIMS 1 improved upgraded to DHIMS 2 with • In-built data validation checks • Standard operating procedures have been developed • There is an established working group to harmonize	• Lack of systematic and on going data validation • Malaria Data not effectively used at the district level • Multiple tools collecting same variables at the facility level	• Existence of district information use manual available • Technical expertise is available in the country that can be used to carry out OR	• Inadequate resources especially at the lower levels • Inadequate personnel for monitoring and evaluation

Malaria Program SWOT for Various Interventions

Strengths	*Weakness*	*Opportunities*	*Threats*
	Monitoring And Evaluation		
entomological data reporting across relevant partners • Good collaboration among NMCP and research Institutions	• Lack of common structure for data sharing among partners • Private sector malaria control data is almost absent from the national aggregate • Tardiness of data submission at various levels. • Inadequate skilled staff for data collection in the health facilities and district health administrations.		
•	• Inadequate funding for the DHIMS • Limited local capacity to sustain DHIMS 2, capacity for data collation, analysis and use at district and sub-district level. • Lack of linkage between commodity inventories and DHIMS 2 • Results of quite a number of surveysare not widely disseminated to inform policy • Surveys not able to provide estimates at district level • Very few Operational Research (OR) being carried out		• Different organizations presenting have different reporting requirements

Annex 8: Support Team for Joint Assessment for National Strategic Plan

- Dr. Constance Bart-Plange – Manager, NMCP
- Dr. Keziah Malm – Deputy Manager, NMCP
- Dr. Felicia Amoo-Sakyi – Program Officer
- Dr. Anthony Ofosu – M&E Specialist. GHS- PPME
- Dr. Felicia Owusu-Antwi – NPO for malaria– WHO Country Office
- Dr. Salessie D'almeida - Health Economist – WHO Country Office
- Mr. Collins Agyarko-Nti – Chairman, Coalition of NGOs Against Health
- Mr. Emmanuel Owusu-Ansah – Health Planner – MOH
- Mr. V. A. Azameti – Chief Econs Officer, MOF. Coordinator (multi-donor budget support)

Annex 9: Logical Framework

	INDICATOR	SOURCE	ASSUMPTIONS	PROCESS OF COLLECTION	FREQUENCY	LEVEL OF REPORTING
GOAL						
Monitoring and Evaluation Plan seek to build system/ structures that would provide timely and reliable information to guide program decision-making for malaria control in Ghana.	Updated Malaria M&E plan	Administrative records	Availability of funds, and service providers	Periodic	Once	National
OVERALL OBJECTIVE						
To strengthen monitoring and evaluationof malaria activities at all levels by 2018.	Establish functional M&Eunits at all levels/agencies/ institutions.	NMCP/GHS	Availability of funds, and service providers	Periodic	Yearly	All Levels
SPECIFIC OBJECTIVES						
To strengthen the technical capacity in monitoring and evaluation for malaria control at all levels.	Number of staff trained in data management or general M&E at national and sub-national level	Administrative records; Implemen-tation report	Availability of funds	Periodic	Quarterly	All Levels
	Number of staff trained in DQI					
	Percentage (%) of health facilities submitting timely and complete reports (on malaria) to district level	DHIMs Reports.				

Logical Framework

	INDICATOR	SOURCE	ASSUMPTIONS	PROCESS OF COLLECTION	FREQUENCY	LEVEL OF REPORTING
SPECIFIC OBJECTIVES						
To strengthen the logistics structure for monitoring and evaluation at all levels.	Number of health facilities with functional logistics structures (ICT)	Administrative records. Implementation report	Availability of funds	Surveys	Biennial	All Levels
	Number of health facilities with improved quality of logistics structure					
To harmonize monitoring and evaluation systems among stakeholders.	Number of reporting tools harmonized	Administrative records; Implementation report.	Availability of funds	Periodic	Yearly	All Levels
	Number of joint DQI conducted					
To improve mal aria data quality assurance system at all levels.	Number of functional DQI teams established	Administrative records· Implementation report.	Availability of funds	Periodic	Bi-annual	All Levels
	Number of DQI conducted					
To build evidence based system for malaria control decision-making at all levels	Roll out research agenda on malaria control	Administrative records; Implementation report.	Availability of funds	Periodic	Yearly	All Levels
	Number of relevant health statistics and analytic reports of malaria control					

Logical Framework

	INDICATOR	SOURCE	ASSUMPTIONS	PROCESS OF COLLECTION	FREQUENCY	LEVEL OF REPORTING
	Number of district/health facilities using data for decision making					
To improve coordination and collaboration among partners conducting malaria M & E.	Implement integrated M&E framework	Administrative records; Implementation report.	Availability of funds	Periodic	Quarterly	All Levels
	Private sector data fully integrated into public system					
	Improve collaborations with MDAs, MMDA , private providers, Parliamentarians, etc. in monitoring control programme					

ANNEX 10: Trends in Funding (Round 2 To 4)

RE-CURRENT EXPENDITURES (ROUND 2)	AMT (US $)	%
Human Resources	744,530.96	19.23
Planning and Admin	1,786,874.30	46.15
Overheads	446,718.58	11.54
Communication	297,812.38	7.69
Monitoring and Evaluation	595,624.77	15.38
GRAND TOTAL	**3,871,560.99**	**100.00**
Investment Expenditures (ROUND 2)	**AMT (US $)**	**%**
Infrastructure and other Equipments	744,530.96	18.77
Medicines	221,814.53	5.59
Health products and health Equipments	2,999,626.20	75.63
GRAND TOTAL	**3,965,971.69**	**100.00**

Annex 11: Trends in Funding (Round 4)

RE-CURRENT EXPENDITURES (ROUND 4)	AMT (US $)	%
Human resources	4,328,413.39	27.7
Communication	4,674,500.19	29.9
Monitoring and Evaluation	3,848,776.04	24.6
Planning and Adm	1,910,365.34	12.2
Overheads	876,513.08	5.6
GRAND TOTAL	**15,638,568.04**	**100**
Investment Expenditure(ROUND 4)	**AMT (US $)**	**%**
Medicines	16,055,714.27	30.40
Health Products and Health Equipments	28,813,998.53	54.56
Infrastructure and Other equipments	7,944,766.96	15.04
GRAND TOTAL	**52,814,479.76**	**100**

Annex 12: Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014-2020										
	MALARIA NATIONAL STRATEGIC PLAN 2014-2020										
STRA-TEGIES	ACTIVITIES	BUDGET PER YEAR (USD)							7-YEARS TOTAL AMOUNT (USD)	INSTITUTIONS/ SERVICES RESPONSIBLE	PARTNERS	COST CATEGORY
		2014	2015	2016	2017	2018	2019	2020				
Objective 1		To protect at least 80% of the population with effective malaria prevention interventions by 2020										
1.1 & 1.2		Distribution of LLINs through campaigns and 1.2 Continuous distribution of LLINs -										
	Update/revise LLINS guideline	70,000.00	-	70,000.00	-	70,000.00	-	70,000.00	280,000.00	MoH	MAVCOC	PLANNING AND ADMINISTR-ATION
	Procure MIP-LLINs	1,820,485.61	1,866,202.62	3,826,029.12	3,921,995.07	4,020,357.10	4,121,183.95	4,224,529.63	23,800,783.10	MoH	GF/VPP/USAID/ PMI/DFID/ UNICEF	HEALTH PRODUCT & EQUIPMENT
	Procure LLINs for underfives	1,449,608.76	1,486,016.41	3,046,581.35	1,561,497.84	3,201,320.00	3,281,603.41	3,494,957.64	17,521,585.41	MoH	GF/WORLD BANK/VPP/USAID/PMI/DFID/ UNICEF	HEALTH PRODUCT & EQUIPMENT
	Procure LLINs for school based distribution	3,100,993.97	-	6,503,255.72	3,329,667.40	3,409,577.65	6,819,155.30	6,819,155.30	29,981,805.34	MoH	GF/VPP/USAID/ PMI/DFID/ UNICEF	HEALTH PRODUCT & EQUIPMENT
	Procure LLINs for mass distribution	30,531,887.70	26,716,046.20	-	32,888,472.60	31,914,299.00	-	70,850, 880.70	192,901,586.20	MoH	GF/VPP/USAID/ PMI/DFID/ UNICEF	HEALTH PRODUCT & QUIPMENT
	Conduct ITN mass distribution (operational cost)	4,331,267.79	3,789,950.74	-	4,665,574.02	4,527,377.30	-	10,050, 938.89	27,365,108.74	MoH	GF/USAID/PMI/ UNICEF/DFID/NGOS/LOCAL LEADERS/ MEDIA	Procurement and Supply Management Cost(PSM)
	Conduct IEC/BCC. Advocacy, and Social Mobilisation	128,950.00	128,950.00	128,950.00	128,950.00	128,950.00	128,950.00	128,950.00	902,650.00	MoH	USAID/MEDIA AGENCIES	Procurement and Supply Management Cost(PSM)

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014-2020											
	Continuous distribution via schools/others (operational cost)	-	-	1,652,400.00	-	-	-	-	1,652,400.00	MoH	PMI/GES_ SHEP	Procurement and Supply Management Cost(PSM)
	Conduct data audit and validation mass campaign)	294,300.00	-	-	294,300.00	-	-	294,300.00	882,900.00	MoH	USAID/PM I/UNICEF	Monitoring and Evaluation (M&E)
	Conduct joint planning meetings with district authorities and local leaders	21,600.00	22,680.00	-	25,004.70	26,254.94	-	56,513.75	152,053.38	MoH	PMI/UNIC EF/NGOS/ LOCAL LEADERS/	PLANNING AND ADMINISTR ATION
	Evaluation of the LLINs mass distribution campaign	-	-	-	100,000.00	-	-	200,000.00	300,000.00	MoH	RESEARCH AGENCY	Monitoring and Evaluation (M&E)
	Production of LLINs M&E tools for EPI and ANC routine distribution for PW and NB	-	100,000.00	-	-	100,000.00	-	-	200,000.00	MoH	USAID/PMI/ UNICEF	PLANNING & ADMIN
	Train/orient health workers and Community Volunteers	160,000.00	-	168,000.00	-	176,400.00	-	185,220.00	689,620.00	MoH	RHMT/DHM T/NGO	TRAINING
	Support participation in vector control international training	60,000.00	66,000.00	72,600.00	79,860.00	87,846.00	96,630.60	106,293.66	569,230.26	MoH	RBM/MOH	TRAINING
	Hold quarterly Vector control committee coordination meetings	12,000.00	12,000.00	12,000.00	12,000.00	12,600.00	13,230.00	13,891.50	87,721.50	MoH	GF/PMI	PLANNING & ADMIN

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014-2020											
	sub total (LLINs)	41,981,093.83	34,187,845.97	15,479,816.19	47,007,321.63	47,674,981.99	14,460,753.26	96,495,631.07	297,287,443.93			
1.3	**Indoor residual spraying for Areas with high parasite prevalence**											
	Cost of Actellic 50EC ($24/Litre)	9,603,248.58	10,553,567.65	14,230,269.25	14,562,406.45	14,903,029.20	15,252,366.27	15,610,652.78	94,715,540.17	AGAMal/USAID-PMI		HEALTH PRODUCT &EQUIPMENT
	Spray pumps/spray person @ $350/SP	93,364.92	379,986.42	334,307.45	141,578.95	144,890.56	148,286.89	151,770.24	1,394,185.42	AGAMal/USAID- PMI -		HEALTH PRODUCT &EQUIPMENT
	Spray pump spare part kits ($150/kit)	8,002.71	32,570.26	28,654.92	12,135.34	12,419.19	12,710.31	13,008.88	119,501.61	AGAMal/USAID-PMI		HEALTH PRODUCT &EQUIPMENT
	First Aid kits @ $40/kit/vehicle	4,040.00	4,040.00	4,080.00	4,080.00	5,920.00	7,400.00	7,880.00	37,440.00	AGAMal/USAID-PMI		HEALTH PRODUCT &EQUIPMENT
	Cost of labour to determine target localities and quantify number of structures in communities (cost/Districts at $2,352.94)	2,352.94	18,823.52	21,176.46	-	-	-	-	42,352.92	AGAMal/USAID-PMI		HEALTH PRODUCT &EQUIPMENT
	Recruitment and vetting of spray men, supervisors and auxiliary staff	148,324.40	162,513.24	218,430.72	223,197.50	228,086.07	233,099.70	238,241.78	1,451,893.40	AGAMal/USAID- PMI	DISTRICT& MUNICIPAL ASSEMBLIES POLICE CID	HUMAN RESOURCE
	Salary for spray men @ $ 460.31 per sprayman. This include a factor for end of period bonus.	4,093,024.58	4,722,965.57	6,686,793.29	7,185,007.54	7,720,722.29	8,296,786.29	8,916,266.50	47,621,566.08	AGAMal/USAID-PMI		HUMAN RESOURCE

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014-2020											
	Salary for team leaders @ $517.72/Team leader. This includes a factor for end of period bonus	920,702.57	1,062,404.20	1,504,156. 06	1,616,226.52	1,736,732.50	1,866,314.82	2,005,663.36	10,712,200.03	AGAMal/ USAID-PMI		HUMAN RESOURCE
	Salary for supervisors @ $1,023.75/Supervisor. This includes a factor for end of year bonus.	1,459,960.54	518,356.06	733,890.56	788,570.69	847,366.59	910,590.90	978,580.25	6,237,315.59	AGAMal/ USAID-PMI		HUMAN RESOURCE
	District insecticide storage room (2000/district)	2,000.00	16,000.00	18,000.00	-	-	-	-	36,000.00	AGAMal/ USAID-PMI	DISTRICT/ MUNICIPAL ASSEMBLIES /DHMT	PLANNING & ADMIN
	Preparation of pump residue disposal sites (3/district @ $3000/disposal site)	3,000.00	24,000.00	27,000.00	-	-	-	-	54,000.00	AGAMal/ USAID-PMI	EPA/DISTRICT & MUNICIPAL ASSEMBLIES	PLANNING & ADMIN
	Overalls, safety boots, gloves, goggles, crash helmets, buckets, laundary, soaps ID cards, etc	815,001.62	895 652.62,	1,207,684.30	1,235,871.88	1,264,779.61	1,294,426.90	1,324,833.70	8,038,250.64	AGAMal/ USAID-PMI		HEALTH PRODUCT & EQUIPMENT
	Standard uniform shirt for spray operators ($20/shirt)	27,564.88	30,292.65	40,846.14	41,799.50	42,777.21	43,779.94	44,808.36	271,868.68	AGAMal/ USAID-PMI		HEALTH PRODUCT & EQUIPMENT

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014-2020											
	Protective sheets for furni shing of houses during spraying @ $3.50/sheet of 5 sheets spraymen.	27,787.18	11,309.12	10,638.60	42,136.59	43,122.19	44,133.00	45,169.71	224,296.40	AGAMal/ USAID-PMI		HEALTH PRODUCT &EQUIPMENT
	House stickers to indicate Geocodes of Houses ($0.3/sticker)	70,023.69	56,997.96	50,146.12	54,824.85	56,414.77	58,050.80	59,734.28	406,192.47	AGAMal/ USAID-PMI		HEALTH PRODUCT &EQUIPMENT
	Trucks -2 tonne containerized vehicles-2 trucks	-	-	60,000.00	-	-	60,000.00	-	120,000.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Vehicles for IRS Operations 4WD pickup	-	-	-	-	900,000.00	240,000.00	-	1,140,000.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Vehicles for IRS Operations-4WD Landcruiser Trooper	-	-	-	-	720,000.00	900,000.00	540,000.00	2,160,000.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Vehicles for IRS Operations 15-Seater	-	-	-	-	-	280,000.00	-	280,000.00	AGAMal/ USAID-PMI		PL ANNING & ADMIN
	Fire extinguishers for existing and new vehicles	6,312.50	6,312.50	6,375.00	6,375.00	9,250.00	11,562.50	12,312.50	58,500.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Fire extinguishers for warehouses & maintenance	200.00	1,600.00	1,800.00	-	-	-	-	3,600.00	AGAMal/ USAID-PMI	GHANA FIRE SERVICE	PLANNING & ADMIN
	Build swathe wall for IRS practical training in each di stricts ($200/district)	200.00	1,600.00	1,800.00	-	-	-	-	3,600.00	AGAMal/ USAID-PMI	DISTRICT/ MUNICIPAL ASSEMBLIES	PLANNING & ADMIN

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014-2020											
	lubricant, 125km/day/ vehicle/ spray round ($0.28/km)	297,000.00	297,000.00	300,093.75	300,093.75	442,406.25	538,312.50	575,437.50	2,750,343.75	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Maintenance for field operation vehicles @ various cost/car /year	54,384.00	54,384.00	54,950.50	54,950.50	81,009.50	98,571.00	105,369.00	503,618.50	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Maintenance 6Vehicles for administrative & supervisory activities	18,000.00	18,000.00	18,000.00	18,000.00	18,000.00	39,600.00	39,600.00	169,200.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Acetyl - cholinesterase test for spray personnel ($30/spray person*2 times/ year)	179,069.28	195,675.89	261,216.86	266,937.00	275,563.28	283,439.64	290,330.13	1,752,232.08	AGAMal/ USAID-PMI	DISTRICT HOSPITALS/ DHMTs	PLANNING & ADMIN
	Routine annual medicals for operational personnel including middle -level staff ($55/person* 2 times/year) entry & exit	247,879.04	270,341.18	360,609.15	368,236.00	379,737.71	390,239.52	399,426.84	2,416,469.44	AGAMal/ USAID-PMI	DISTRICT HOSPITALS/ DHMTs	PLANNING & ADMIN
	Insurance and license for vehicles (1000/vehicle /year)	101,000.00	101,000.00	102,000.00	102,000.00	148,000.00	185,000.00	197,000.00	936,000.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Forms to indicate house spray completion (0.06 per page per house)	28,009.48	30,781.24	41,504.95	42,473.69	43,467.17	44,486.07	45,531.07	276,253.66	AGAMal/ USAID-PMI		PLANNING & ADMIN

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014-2020											
	National operational planning and stakeholders forum: 40 people x 5days/ half year	48,000.00	48,000.00	48,000.00	48,000.00	48,000.00	48,000.00	48,000.00	336 ,000.00	AGAMal/ USAID - PMI	RHMT/DH MT/OPINION LEADERS	PLANNING & ADMIN
	Transportati on,handling, bank transfer charges and Agency fees of insecticides (4% of total insecticide cost for the year)	384,129.94	422,142.71	569,21 0.77	582,496.26	596,121.17	610,094.65	624,426.11	3,788,621.61	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Transportati on, handling, bank transfer charges and Agency fees of spray pumps (4% of total spray pump cost for the year)	3,734.60	15,199.46	13,372.30	5,663.16	5,795.62	5,931.48	6,070.81	55,767.42	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Annual audit of operations for safety and quality Assurances (2 consult for 10d/yr)	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	140,000.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Operational Consultancy Services	6,000.00	6,0 00.00	6,000.00	6,000.00	6,000.00	6,000.00	6,000.00	42,000.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Finance/IT Consultancy Services	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	35,000.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Training cost for spray men: 10 days for new recruits & 5 days for existing operators	222,297.42	244,295.55	329,404.38	337,092.74	344,977.53	353,064.03	361,357.70	2,192,489.36	AGAMal/ USAID-PMI		TRAINING

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Training cost for Team leaders: 10 days for new recruits & 5 days for existing operators	44,459.48	48,859.11	65,880.88	67,418.55	68,995.51	70,612.81	72,271.54	438,497.87	AGAMal/ USAID-PMI		TRAINING
	Training cost for Supervisors (for 20 days 10 days as trainee and 10 days as trainers.)	15,560.82	17,100.69	23,058.31	23,596.49	24,148.43	24,714.48	25,295.04	153,474.2 5	AGAMal/ USAID-PMI		TRAINING
	Per diem for national/ regional onal training coodinators (2 per district for 5 days)	26,000.00	27,000.00	36,000.00	36,000.00	3 6,000.00	36,000.00	36,000.00	233,000.00	AGAMal/ USAID- PMI		TRAINING
	Management Training Courses & International Conferences	9,000.00	9,000.00	9,000.00	9,000.00	9,000.00	9,000.00	9,000.00	63,000.00	AGAMal/ USAID-PMI		TRAINING
	Support and Maintenance for IT Systems (Computers, printers etc.)	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	1,500.00	10,500.00	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Fuel and lubricant, 60km/day/vehicle / year round ($0.28/km)	30,112.50	30,112.50	30,112.50	30,112.50	30,112.50	66,247.50	66,247.50	283,057.50	AGAMal/ USAID-PMI		PLANNING & ADMIN
	Cost of camping for spray operators, team leaders and supervisors in hard to reach areas	275,648.80	302,926.48	408,461.43	417,995.00	427,772.13	437,799.40	448,083.55	2,718,686.80	AGAMal/ USAID-PMI	DISTRICT/ MUNICIPAL ASSEMBLIES	PLANNING & ADMIN

Annex 12: Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	sub total	19,374, 696.46	20,738, 91058	27,990,224.64	28,757,576.45	31,747,916.98	33,033, 921.42	33,431,669.12	195,074,915.65			
1.3.1 Programme Management Cost and Administration for(IRS)												
	Utilities	78,000.00	81,000.00	108,000.00	108,000.00	108,000.00	108,000.00	108,000.00	699,000.00	AGAMal/USA ID -PMI		PLANNING & ADMIN
	Internal Communication Costs	18,200.00	18,900.00	25,200.00	25,200.00	25,200.00	25,200.00	25,200.00	163,100.00	AGAMal/USA ID -PMI		PLANNING & ADMIN
	Security	124,800.00	129,600.00	172,800.00	172,800.00	172,800.00	172,800.00	172,800.00	1,118,400.00	AGAMal/USA ID -PMI		PLANNING & ADMIN
	Cleaning Services	31,200.00	32,400.00	43,200.00	43,200.00	43,200.00	43,200.00	43,200.00	279,600.00	AGAMal/USA ID -PMI		PLANNING & ADMIN
	Legal, accounting & auditing costs	38,000.00	38,000.00	38,000.00	38,000.00	38,000.00	38,000.00	38,000.00	266,000.00	AGAMal/USA ID -PMI		PLANNING & ADMIN
	Bank charges	24,000.00	24,000.00	24,000.00	24,000.00	24,000.00	24,000.00	24,000.00	168,000.00	AGAMal/USA ID -PMI		PLANNING & ADMIN
	Staff-Insurance Workmans' Compensation, Group Accident Policy, etc(1% of salaries to staff annually)	46,413.99	41,358.68	56,476.90	60,394.36	65,311.08	70,353.82	75,444.07	415,752.90	AGAMal/USA ID -PMI		PLANNING & ADMIN
	sub total	360,613.99	365,258.68	467,676.90	471,594.36	476,511.08	481,553.82	486,644.07	3,109,852.90			
1.3.2 Establishment of entomology lab and insectory (IRS)												
	Laboratory Equipment & Accessories for entomological monitoring in IRS sites (eg. PCR. reagents)	-	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	450,000.00	AGAMal/USA ID -PMI		Monitoring and Evaluation (M&E)
	Equipment for larval surveillance (dippers and pans)	-		7,500.00	7,500.00	7,500.00	7,500.00	7,500.00	37,500.00	AGAMal/USA ID -PMI		Monitoring and Evaluation (M&E)

Annex 12: Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Batteries for light traps (4 carb on-zinc/trap/14 sites/month/ district)	1,536.00	1,536.00	1,536.00	1,536.00	1,536.00	1,536.00	1,536.00	10,752.00	AGAMal/USA ID -PMI		Monitoring and Evaluation (M&E)
	sub total	1,536.00	76,536.00	84,036.00	84,036.00	84,036.00	84,036.00	84,036.00	498,252.00			
1.3.3 Supervision and Operational Research(IRS)												
	District Review meeting: 1x a year for 40 people/district @ $30/person	31,200.00	32,400.00	43,200.00	43,200.00	43,200.00	43,200.00	43,200.00	279,600.00	AGAMal/USA ID -PMI	DISTRICT & MUNICIPAL ASSEMBLIES	Monitoring and Evaluation (M&E)
	Regional review meeting: 1x a year for 70/region @ $100/person /meeting	0.00	-	-	-	-	-	-	-	AGAMal/USA ID -PMI	RHMT/EPA /OPINION LEADERS	Monitoring and Evaluation (M&E)
	Supervision of IRS activities by district management team ($800/district/spray period)	20,800.00	21,600.00	28,800.00	28,800.00	28,800.00	28,800.00	28,800.00	186,400.00	AGAMal/USA ID -PMI		Monitoring and Evaluation (M&E)
	Supervision of districts by regional management teams and other partners ($1,000/region/per spray	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	21,000.00	AGAMal/USA ID -PMI	RHMT/ DHMT/ EPA/OP INION LEADERS	Monitoring and Evaluation (M&E)

Annex 12: Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Supervision of regions and districts by national management team(8persons for 12 days per quarter)	76,800.00	76,800.00	76,800.00	76,800.00	76,800.00	76,800.00	76,800.00	537,600.00	AGAMal/ USAID-PMI	RHMT/ DHMT/EPA/ OPINON LEADERS	Monitoring and Evaluation (M&E)
	sub total	131,800.00	133,800.00	151,800.00	151,800.00	151,800.00	151,800.00	151,800.00	1,024,600.00	-		
1.3.4 Human Resources(IRS)												
	Entomological) technicians for entomology laboratory ($1,103/ month)	85,995.00	90,294.75	94,809.49	99,549.96	104,527.46	109,753.83	115,241.52	700,172.02	AGAMal/ USAID- PMI		HUMAN RESOURCE
	Secretary for national level office ($945/month)	12,285.00	12,899.25	13,544.21	14,221.42	14,932.49	15,679.12	16,463.07	100,024.57	AGAMal/ USAID-PMI		HUMAN RESOURCE
	Drivers for operations (national; District & Regional levels) @ $525/driver	252,065.52	307,015.80	275,181.11	288,940.17	447,261.50	571,431.31	641,382.38	2,783,277.79	AGAMal/ USAID-PMI		HUMAN RESOURCE
	Regional Managers @ $2,363/ month)	92,137.50	96,744.38	101,581.59	106,660.67	111,993.71	117,593.39	123,473.06	750,184.30	AGAMal/ USAID-PMI		HUMAN RESOURCE
	National HR officers ($945/month)	24,570.00	25,798.50	27,088.43	28,442.85	29,864.99	31,358.24	32,926.15	200,049.15	AGAMal/ USAID-PMI		HUMAN RESOURCE

Annex 12: Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Regional M&E Manager (@ $1,418/month)	55,282.50	26,790.75	28,130.29	29,536.80	31,013.64	32,564.32	34,192.54	237,510.85	AGAMal/ USAID - PMI		HUMAN RESOURC
	Regional Finance & Admin Officer (@ $1,418/month)	55,282.50	26,790.75	28,130 .29	29,536.80	31,013.64	32,564.32	34,192.54	237,510.85	AGAMal/ USAID - PMI		HUMAN RESOURC
	Regional IE&C Coordinators $1418/month)	55,282.50	26,790.75	28,130.29	29,536.80	31,013.64	32,564.32	34,192.54	237,510.85	AGAMal/ USAID - PMI		HUMAN RESOURC
	2 Regional1 National Logistics Officers (@ $1,418/month	55,282.50	58,046.63	60,948.96	63,996.40	67,196.22	70,556.04	74,083.84	450,110.58	AGAMal/ USAID - PMI		HUMAN RESOURCE
	District IRS Operation Manager (DOM) @ $ 1575/Manager	532,350.00	267,907.50	375,070.50	393,824.03	413,515.23	434,190.99	455,900.54	2,872,758.78	AGAMal/ USAID - PMI		HUMAN RESOURCE
	District Admin officers @ $945/month	319,410.00	160,744.50	225,042.30	236,294.42	248,109.14	260,514.59	273,540.30	1,723,655.27	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Data Manager	36,075.04	37,878.79	39,772.73	41,761.37	43,849.44	46,041.91	48,344.00	293,723.27	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Insectory Technician	36,855.00	38,697.75	40,632.64	42,664.27	44,797.48	47,037.36	49,389.22	300,073.72	AGAMal/ USAID - PMI		HUMAN RESOURCE
	District IEC Co ordinators	372,645.00	187,535.25	262,549.35	275,676.82	289,460.66	303,933.69	319,130.38	2,010,931.14	AGAMal/ USAID - PMI		UMAN RESOURCE
	District M & E Coordinators	372,645.00	187,535.25	262,549.35	275,676.82	289,460.66	303,933.69	319,130.38	2,0 10,931.14	AGAMal/ USAID - PMI		HUMAN RESOURCE

Annex 12: Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	IEC Implementers	229,320.00	200,037.60	280,052.64	294,055.27	308,758.04	324,195.94	340,4 05.73	1,976,825.22	AGAMal/ USAID - PMI		HUMAN RESOURCE
	PSM Manager	20,475.00	21,498.75	22,573.69	23,702.37	24,887.49	26,131.86	27,438.46	166,707.62	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Transport Officer	18,427.50	19,348.88	20,316.32	21,332.13	22,398.74	23,518.68	24,694.61	150,036.86	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Management Accountant	46,430.80	48,752.43	51,190.05	53,749.55	56,437.03	59,258.88	62,221.83	378,040.65	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Finance Superintendent	36,075.04	37,8 78.79	39,772.73	41,761.37	43,849.44	46,041.91	48,344.00	293,723.27	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Finance Officers	28,665.00	30,098.25	31,603.16	33,183.32	34,842.49	36,584.61	38,413.84	233,390.67	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Industrial Relations Officers	28,665.00	13,891.50	14,586.08	15,315.38	16,081.15	16,885.21	17,729.47	123,153.77	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Payroll Administrat or	29,238.30	30,700.22	32,235.23	33,846.99	35,539.34	37,316.30	39,182.12	238,058.49	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Entomologist	13,650.00	14,332.50	15,049.13	15,801.58	16,591.66	17,421.24	18,292.31	111,138.42	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Training for malaria staff (Zonal & district level, MLM freshly recruited) on malaria control and planning 10days	48,000.00	384,000.00	432,000.00	-	-	-	-	864,000.00	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Training of District managers on program managemen (1/district/5 days)	10,400.00	10,800.00	14,400.00	14,400.00	14,400.00	14,400.00	14,400.00	93,200.00	AGAMal/ USAID - PMI		TRAINING

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	sub-total	2,867,509.78	2,362,809.50	2,816,940.53	2,503,467.56	2,771,795.26	3,011,471.75	3,202,704.85	19,536,699.24			
1.3.5 Logisticts(IRS)												
	Air - conditioners for district and Regional offices	2,400.00	19,200.00	21,600.00	-	-	-	-	43,200.00	AGAMal/ USAID - PMI		PLANNING & ADMIN
	Equipment maintenance ($150/district	46,800.00	48,600.00	64,800.00	64,800.00	64,800.00	64,800.00	64,800.00	419,400.00	AGAMal/ USAID - PMI		PLANNING & ADMIN
	Office building maintenance ($150/month /district)	31,200.00	32,400.00	43,200.00	43,200.00	43,200.00	43,200.00	43,200.00	279,600.00	AGAMal/ USAID - PMI		PLANNING & ADMIN
	Office building rental ($400/month /district)	3,600.00	28,800.00	129,600.00	129,600.00	129,600.00	129,600.00	129,600.00	680,400.00	AGAMal/ USAID - PMI		PLANNING & ADMIN
	Office furniture (chairs, tables, etc) $3,400 per district	3,400.00	27,200.00	122,400.00	122,400.00		122,400.00	122,400.00	642,600.00	AGAMal/ USAID - PMI		PLANNING & ADMIN
	Office supplies (@ $323.54/dist 323.54/district	10,400.00	10,800.00	14,400.00	14,400.00	14,400.00	14,400.00	14,400.00	93,200.00	AGAMal/ USAID - PMI		PLANNING & ADMIN
	sub -total	97,800.00	167,000.00	396,000.00	374,400.00	374,400.00	374,400.00	374,400.00	2,158,400.00			
1.3.6 Community Outreach and Mass Media(IRS)												
	Indoor residual spraying: Printing & Distribution of posters and fliers for IRS	10,000.00	10,000.00	10,000.00	-	-	-	-	30,000.00	AGAMal/ USAID - PMI		COMMUNI-CATION

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	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Indoor residual spraying: Production of IRS audio visual media spots and messages	-	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	60,000.00	AGAMal/ USAID - PMI		COMMUNI CATION
	Indoor residual spraying: Radio airtime and messages on IRS to create awareness	90,000.00	97,200.00	129,600.00	129,600.00	129,600.00	129,600.00	129,600.00	835,200.00	AGAMal/ USAID - PMI		COMMUNI CATION
	Indoor residual spraying: Community education on IRS using committees, gatherings, posters, banners, durbars, etc	7,800.00	8,100.00	10,800.00	10,800.00	10,800.00	10,800.00	10,800.00	69,900.00	AGAMal/ USAID - PMI	DHMT/ OPINION LEADERS /RADIO STATIONS ORMATION CENTRES	COMMUNI-CATION
	Indoor residual spraying: bill boards & sign posts	1,300.00	10,400.00	11,700.00		-	-	-	23,400.00	AGAMal/ USAID - PMI		COMMUNI-CATION
	Allowances for IE&C Advocates	9,336.49	10,260.41	13,834.98	14,157.90	14,489.06	14,828.69	15,177.02	92,084.55	AGAMal/ USAID - PMI	COMMUNITY ADVOCATES	COMMUNI-CATION
	sub -total	119,996.49	147,580.41	188,094.98	166,717.90	167,049.06	167,388.69	167,737.02	1,124,564.55			
	IRS sub total	22,953,952.72	23,991,895.17	32,094,773.06	32,509,592.27	35,773,508.39	37,304,571.68	37,898,991.07	222,527,284.35			
1.4	Larval source Management											
	Review/generate evidence of targeted larviciding								-	AGAMal/ USAID - PMI		M&E

Annex 12: Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Support collection of meteorology data in 12 sentinelsites	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	84,000.00	AGAMal		M&E
	Map breeding sites in target areas	3,500.00	3,850.00	4,235.00	4,658.50	5,124.35			21,367.85	AGAMal/ USAID - PMI		M&E
	Conduct pilot larviciding interventions in selected areas (urban or localized rural areas)	750,000.00	750,000.00	750,000.00	750,000.00	750,000.00	750,000.00	750,000.00	5,250,000.00	AGAMal/ USAID - PMI		M&E
	Procure larvicides (Bioplaguicdes	43,650,818.00	43,650,818.00	43,650,818.00	43,650 ,818.00	43,650,818.00	43,650,818.00	43,650,818.00	218,254,090.00	AGAMal/ USAID - PMI		HEALTH PRODUCT &EQUIPMENT
	Provide Technical Assistance (TA)	660,600.	660,600.0	660,600.0	660,600.00	660,600.00	660,600.00	660,600.00	3,303,000.00	AGAMal/ USAID - PMI		HUMAN RESOURCE
	Support utilities	1,193,40.00	1,312,740.00	1,312,740.00	1,312,740.00	1,312,740.00	1,312,740.00	1,312,740.00	6,444,360.00	AGAMal/ USAID - PMI		OVERHEADS
	Monitor and evaluate larviciding	270, 792.00	270,792.00	270,792.00	270,792.00	270,792.00	270,792.00	270,792.00	1,353,960.00	AGAMal/ USAID - PMI		M&E
	Organize every three years a n expanded survey on bionomics of malaria vectors	70,000.00	-	-	70,000.00	-	-	70,000.00	210,000.00	AGAMal/ USAID - PMI		PLANING& ADMIN
	Promotion (Advocacy, socio - mobilisation)	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	10,000.00	AGAMal/ USAID - PMI		COMMUNI CATION
	Conduct assessment	10,500.00	11,025.00	11,576.25	12,155.06	12,762.82	13,400.96	14,071.00	58,019.13	AGAMal/ USAID - PMI		M&E

Annex 12: Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Conduct operational research on the effectivenes of vector control tools and interventions	-	-	-	300,000.00	-	-	-	300,00 0.00	AGAMal/ USAID - PMI		M&E
	Update/review guidelines	70,000.00	-	77,000.00	-	84,700.00	-	93,170.00	231,700.00	AGAMal/ USAID - PMI		COMMUNI CATION
	Conduct data audit and validation	144,000.00	144,000.00	144,000.00	158,400.00	158,400.00	158,400.00	174,240.00	748,800.00	AGAMal/ USAID - PMI		M&E
	Train/orient spray operators for larvicides/CVs	-							-	AGAMal/ USAID - PMI		TRAINING
	sub-total (Larval Source Mgt)	46,837, 610.00	46,817,8 25.00	46,895,7 61.25	47,204, 163.56	46,919, 937.17	46 ,830, 750.9564063	47,010, 431.00	236,269,2 96.98			
1.5	Entomological and Resistance Monitoring and Management											
	Entomological Inoculation Rate Monitoring	150,000.00	165,000.00	181,500.00	199,650.00	219,615.00	241,576.50	265,734.15	1,423,075.65	AGAMal/ USAID - PMI	RESEARCH INSTITU TIONS	MONITORING & EVALUATION (M & E)
	Bioassays for quality control of spraying ($1200/district /half year)	31,200.00	32,400.00	43,200.00	43,200.00	43,200.00	43,200.00	43,200.00	279,600.00	AGAMal/ USAID - PMI	RESEARCH INSTITU-TIONS	MONITORING & EVALUATION (M & E)

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Undertake entomological surveys ($30,000/ district)	30,000.00	240,000.00	270,000.00	-	-	-	-	540,000.00	AGAMal/ USAID - PMI	RESEARCH INSTITUTIONS	MONITORNG & EVALUATION (M & E)
	IRS Scientific Advisory Committee meetings	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	35,000.00	AGAMal/ USAID - PMI	NMCP, RESEARCH ACADEMIA	MONITORNG EVALUATION (M & E)
	Monitoring for vector density and diversity (HLC)($900/ district)	23,400.00	24,300.00	32,400.00	32,400.00	32,400.00	32,400.00	32,400.00	209,700.00	AGAMal/ USAID - PMI	RESEARCH INSTITUTIONS	MONITORNG & EVALUATION (M & E)
	Elisa for sporozoites ($2/sample including transp -100 mosquitoes per month per sites -9 sites)	7,200.00	7,200.00	7,200.00	7,200.00	7,200.00	7,200.00	7,200.00	50,400.00	AGAMal/ USAID - PMI	RESEARCH INSTITUTIONS	MONITORNG & EVALUATION (M & E)
	Insecticides Quality control for IRS	22,212.00	22,212.00	22,212.00	22,212.00	22,212.00	22,212. 00	22,212.00	155,484.00	AGAMal/ USAID - PMI	EPA/RE SEARCH INSTITUTIONS	MONITORMNG & EVALUATION (M & E)
	Subtotal (Ent Resis Mon)	246,800.00	496,112.00	561,512.00	309,662.00	329,627.00	351,588.50	375,746.15	2,693,259.65			
1.6	Seasonal Malaria Chemopre vention											
	Procurement of Sulphurdoxine pyremetha mine for SMC for the 3 northern regions	8,38 6.58	8,582.32	8,783.08	8,988.98	9,200.17	9,416.79	9,638.98	62,996.90	MoH	GF/DFID	MEDICINES & PHARMAC EUTICAL P RODUCTS

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Procurement of Amodiaquine 153mg for SMC for in the 3 northern regions	373,058.12	381,765.38	390,695.56	399,854.67	409,248.91	418,884.65	428,768.44	62,996.90	MoH	GF/DFID	MEDICINES & PHARMACEUTICAL PRODUCTS
	Planning meeting for the 3 northern regions	12,640.00	13,272.00	13,935.60	14,632 .38	15,364.00	16,132.20	16,938.81	102,914.99	MoH	GF/UNICEF/DFID/PMI/FDA	PLANNING & ADMIN
	stakeholders meeting for the 3 northern regions	33,000.00	33,000.00	33,000.00	33,000.00	33,000.00	34,650.00	33,000.00	232,650.00	MoH	GF/UNICEF/DFID/PMI/GES/LOC GOVT	PLANNING & ADMIN
	training of trainers of SMC for the 3 northern regions	51,930.00	54,526.50	57,252.83	60,115.47	63,121.24	66,277.30	69,591.17	422,814.50	MoH	GF/FDA /LOC GOVT	TRAINING
	district trainings on SMC for the 3 northern regions	125,520.26	131,796.28	138,386.09	145,305.39	152,570.66	160,199.20	168,209.16	1,021,987.04	MoH	GF/FDA /LOC GOVT/CBAS/NGOS	TRAINING
	logistics training on SMC for the 3 northern regions	15,804.00	16,594.20	17,423.91	18,295.11	19,209.86	20,170.35	21,178.87	128,676.30	MoH	GF/FDA /LOCAL GOVT/ UNICEF	TRAINING
	Dosing of children 3 - 59months	1,840,00	1,932,000.00	2,028,600.00	2,130,030.00	2,236,531.50	2,348,358.08	2,465,775.98	14,981,295.55	MoH	GF/LOCAL GOVT/CBAS /NGOS	PLANNING & ADMIN
	Transportation	1,020.00	1,224.00	1,468.80	1,762.56	2,115.07	2,538.09	3,045.70	13,174.22	MoH	USAID/DFID	TRAINING
	Data Management	244,580.00	244,580.00	244,580.00	244,580.00	244,580.00	244,580.00	244,580.00	1,712,060.00	MoH	PMI/USAID/DFID	MONITORING & EVALUATION (M & E)
	Supportive supervision for SMC service providers	407,854.00	407,854.00	407,854.00	407,854.00	407,854.00	407,854.00	407,854.00	2,854,978.00	MoH	GF/UNICEF/DFID/PMI/GES/LOCAL/ GOVT	MONITORING & EVALUATION (M & E)

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Pharmacovigilance of SMC SMC	84,820.00	84,820.00	84,820.00	84,820.00	84,820.00	84,820.00	84,820.00	424,100.00	ACADEMIA	GF/FDA /LOC GOVT	MONITORING & EVALUATION (M & E)
	IEC/BCC activites (general public and health workers)	198,325.00	198,325.00	198,325.00	198,325.00	198,325.00	198,325.00	198,325.00	1,388,275.00	MoH	GF/UNICEF/DFID/PMI/GES/LOC GOVT/	COMMUNICATION
	subtotal for SMC	3,396,937.96	3,508,339.68	3,625,124.86	3,747,563.55	3,875,9	4,012,205.65	4,151,726.11	23,408,919.40			
1.7	Prevention of Malaria in Pregnancy (MIP)											
	Procure doses of SP	248,995.38	281,097.00	288,686.61	296,481.15	304,486.14	31,362.72	323,029.32	1,774,138.32	MoH	PMI/USAID	MEDICINES & PHARMACEUTICALS
	Distribute SP to Health facilities	120,000.	120,000.00	120,000.00	120,000.00	120,000.00	120,000.00	120,000.00	840,000.00	MoH	PMI/USAID	PSM
	Procure doses of Clindamycinst trimester.	511,933.20	497,306.40	412,764.00	338,467.20	270,772.80	222,033.60	222,033.60	2,475,310.80	MoH	PMI	MEDICINES & PHARMACEUTICALS
	procure doses of quinine tablets	68,257.74	55,946.97	46,435.98	38,077.50	26,513.22	21,740.82	21,740.82	278,713.05	MoH	PRIVATE	MEDICINES & PHARMACEUTICALS
	procure Folic Acid 400ug tablets	2,470,946.40	2,520,180.00	2,588,224.86	2,658,106.90	2,729,875.82	2,811,772.09	2,811,772.09	18,590,878.15	MoH	PRIVATE	MEDICINES & PHARMACEUTICALS
	Advocacy meetings for the production and supply of Folic acid 400ug (30 people mtg 4 times in the year at $50 each)	6,000.00	6,000.00	6,000.00	6,000.00	6,000.00	6,600.00	6,600.00	43,200.00	MoH	MIP WORKING	PLANNING & ADMIN

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Provide pre-service training to 100 doctors, 200 nurses, 200 midwives on IPTp and quality assurance activities	75,000.00	75,000.00	75,000.00	75,000.00	75,000.00	78,750.00	82,687.50	536,437.50	MoH	MED SCHOOLS, HEALTH TRG INSTITU	TRAINING
	In -service Training for health workers (H &W) on IPTp and quality assurance activities	-	400,000.00	-	400,000.00	-			800,000.00	MoH	PMI/USAID	TRAINING
	Hold advocacy meetings with 30 NHIA to include SP as a part of prenatal care (meet twice a year)	3,000.00	3,000.00	3,000.00	3,000.00	3,000.00	3,150.00	3,307.50	21,457.50	MoH	NHIA	PLANNING & ADMIN
	Design TV advert campaign (that comprises 1 English version and 7 local language versions)	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	350,000.00	MoH	MEDIA AGENCY	COMMUNI CATION
	Air TV advert campaign on 7 TV channels with differing intensities per month to administer three times	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	1,050,000.00	MoH	MEDIA AGENCY	COMMUNI CATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Design a radio advert campaign (that comprises 1 English version and 7 local language versions)	25,000.00	25,000.00	-	25,000.00	-	-	-	75,000.00	MoH	MEDIA AGENCY	COMMUNICATION
	Air radio advert campaign at varying intensities and coverage to ask health providers to administer three times during pregnancy	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	1,050,000.00	MoH	MEDIA AGENCY	COMMUNICATION
	Review/ update MIP documents including flow chart and tally sheets	50,000.00	-	50,000.00	-	50,000.00	50,000.00	50,000.00	250,000.00	MoH	MIP WORKING GROUP	COMMUNICATION
	Print relevant MIP documents, incl. the tally cards and flowcharts	500,000.00	-	-	-	500,000.00	-	500,000.00	1,500,000.00	MoH	PRINTING COMPANY	COMMUNICATION
	Distribute MIP guidelines/ Flowchart to health facilities	-	-	125,432.21	-	-	-	-	125,432.21	MoH	CMS/RMS /DHMTS	PSM
	Train NGOs in follow up of pregnant women	-	20,000.00	-	20,000.00	-	20,000.00	-	60,000.00	NGOs	FAMILY HEALTH	TRAINING

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Sentinel sites to monitor SP(molecular markers) and all other antimalarials under MIP	-	125,432.21	125,432.21	125,432.21	125,432.21	125,432.21	125,432.21	752,593.26	ACADEMAIA	PMI/DFDID	M&E
	Assess outcomes of IPTp	-	200,000.00	-	200,000.00	-	-	-	400,000.00	MoH	RESEARCH AGENCY	M&E
	Hold MIP working group meetings	12,000.00	12,000.00	12,000.00	12,000.00	12,000.00	3,000.00	3,000.00	66,000.00	MoH	MIP WORKING GROUP	PLANING& ADMIN
	Revise ANC registers to reflect new IPTp policy/continous LLIN continous distribution	16,000.00	-	6,700.00	-	6,700.00	-	6,700.00	36,100.00	MoH	MIP WORKING GROUP	COMMUNICATION
	Print revised ANC registers	300,0 00.00	-	150,000.00	-	150,000.00	-	150,000.00	750,000.00	MoH	PRINTING COMPANY	PSM
	MIP sub-total	4,757,132.72	4,690,962.58	4,359,675.87	4,667,564.96	4,729,780.19	3,843,841.44	4,776,303.04	31,825,260.79			
	Total for Objective1 (Effective malaria prevention interventions	120,173, 527.23	113,692,980.40	103,016,663.23	135,445,867.97	139,303,775.14	###### ####	###### #####	909,145,353.89			
Objective 2	To provide parasitology diagnosis to all suspected malaria cases and provide prompt and effective treatement to 100% confrimed malaria cases by 2020											
2.1	Provide quality malaria diagnosis to all suspected cases at all levels											
	Procure RDTs	5,926,924.92	5,046,511.61	4,998,246.39	4,865,403.74	4,634,754.12	4,634,754.12	4,634,754.12	34,741,349.03	MoH	GF/PMI	HEALTH PRODUCT &EQUIPM

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Procure microscopes	40,000.00	300,000.00	-	-	300,000.00	-	1,100,000.00	1,740,000.00	MoH	PMI	HEALTH PRODUCT &EQUIPMENT
	Procure Kits of reagents for microscopy	63,914.40	63,914.40	63,914.40	63,914.40	63,914.40	63,914.40	63,914.40	447,400.80	MoH	PMI	COMMUNI CATION
	Review/ Develop diagnosis guidelines	14,149.40	-	14,856.87	-	15,599.71	-	16,379.70	60,985.68	MoH	GF/CASE MGT WG/PMI	PLANNING & ADMIN
	Review/Develop treatment guidelines	14,149.40	-	14,856. 87	-	15,599.71	-	16,379.70	60,985.68	MoH	GF/CASE MGT WG/PMI	PLANNING & ADMIN
	Review/Develop algorithms/ Flowcharts for man agement of illness w/fever	14,149.40	-	14,856.87	-	15,599.71	-	16,379.70	60,985.68	MoH	GF/CASE MGT WG/PMI	PLANNING & ADMIN
	Print (diagnosis guidelines, guidelines, and flowcharts)	525,000.00	-	525,000.00	-	525,000.00	-	525,000.00	2,100,000.00	MoH	GF/PMI	PLANNING & ADMIN
	Distribute guidelines and flowcharts	3,000.00	-	3,150.00	-	3,307.50	-	3,472.88	12,930.38	MoH	GF/PMI	PSM
	Procurement of laboratory consumables and support items (microscopes, dippers etc)	250,000.00	16,594.20	17,423.91	18,295.11	20,124.62	22,137.08	24,350.79	368,925.69	MoH	GF/PMI	HEALTH PRODUCT & EQUIPMENT

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Hold in - service training workshop for laboratory health workers	-	604,260.00	-	604,260.00	-	604,260.00	-	1,812,780.00	MoH	GF/CAS MGT WG/PMI	TRAINING
	Hold pre - service training on Malaria Control activities(MCM) for Tutors in Health Training Institutions	137,550.00	-	144,427.50	-	151,648.88	-	159,231.32	592,857.69	MoH	GF/CASE MGT WG/PMI	TRAINING
	Hold in - service training workshop for health workers on MCM/new guidelines/ flow charts	1,234,30.00	-	1,296,015.00	-	1,360,815		1,428,856.54	5,319,987.29	MoH	GF/CASE MGT WG/PMI	TRAINING
	Provide CMEs for physicians, pharmacists and nurses	600,000.	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	600,000.00	4,200,000.00	MoH	MED & DENTAL COUNCIL PHARMACY COUNCIL	TRAINING
	Private sector supervisory visits - 5 days per quater to private sector health outlets for quality control/ assurance	26,500.00	26,500.00	27,825.00	29,216.25	30,677.06	32,210.92	33,821.46	206,750.69	PRIVATE	MOH/ PRIIVATE MED ASS	M&E

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	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Conduct supervisory visits for lab technicians and laboratory staff	140,000.00	140,000.00	140,000.00	147,000.00	154,350.00	162,067.50	170,170.88	1,053,588.38	MoH	GF/CASEE MGT WG/PMI	M&E
	Monitor and document use of diagnostics	40,000.00	42,000.00	44,100.00	46,305.00	48,620.25	51,051.26	53,603.83	325,680.34	MoH	GF/CASE MGT WG/PMI	M&E
	Conduct training on management of emergencies due to severe malaria for 800persons in 400 hospitals	148,800.00		156,240.00		164,052.00		172,254.60	641,346.60	MoH	GF/CASE MGT WG/PMI	TRAINING
	sub total	9,178,437.52	6,839,780.21	8,06 0,912.81	6,374,394.50	8,104,063.72	6,170,395.28	9,018,569.90	53,746,553.93	-	0	
2.2	Strengthen health worker capacity for malaria case management								-			
	Train health workers on management of uncomplicated malaria cases with special attention to the special groups like SCD, non immune, those with HIV/AIDS, the malnourished and the refugees of health workers in both public	105,000.00	-	110,250.00		115,762.50		121,550.63	452,563.13	MoH	GF/CASE MGT WG/PMI	TRAINING

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Collaborate with health training institutions to facilitate the update of curricula of health training institutions and provide all relevant documents to the training institutions	5,000.00	5,250.0 0	5,512.50	5,788.13	6,077.53	6,381.41	6,700.48	40,710.04	MoH	GF/CASE MGT WG/PMI	PLANNING & ADMIN
	Collaborate with key stakeholders to support training in Integrated Management of Childhood diseases (IMNCI)	5,000.00	5,250.00	5,512.50	5,788.13	6,077.53	6,381.41	6,700.48	40,710.04	MoH	GF/CASE MGT WG/PMI	TRAINING
	Print (diagnosis guidelines, tx guidelines, and flowcharts)	525,000.00	-	-	525,000.00	-	-	525,000.00	1,575,000.00	MoH	PMI	PLANNING & ADMIN
	Distribute guidelines and flowcharts	3,000.00	3,300.00	3,630.00	3,993.00	4,392.30	4,831.53	5,314.68	28,461.51	MoH	PMI	PSM
	Provide protocols, job aids and observation / monitoring charts for the management of severe malaria at referral points	150,000.00	157,500.00	165,375.00	173,643.75	182,325.94	191,442.23	201,014.35	1,221,301.27	MoH	PMI	PLANNING & ADMIN

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	sub-total	793,000.00	171,300.00	290,280.00	714,213.00	314,635.80	209,036.58	866,280.51	3,358,745.99		
2.3	Management of uncomplicated and severe malaria at health facilities										
	Procure ACTs	8,551,848.38	6,741,031.03	8,910,985.35	8,452,317.96	8,346,206.79	7,452,197.96	5,715,914.75	54,170,501.82	MoH	VPP/GF/ PMI
	Procure injectable artesunate doses 60mg	3,429,149.42	2,635,084.22	2,540,28523.	1,881,692.76	2,154,462.46	1,867,221.88	1,326,029.29	15,833,925.26	MoH	VPP/GF/ PMI
	Procure rectal Artesunate 50mg	50,294.19	38,647.90	37,257.52	34,000.59	31,598.78	27,385.92	19,448.43	238,633.33	MoH	PMI/USAID
	Procure rectal Artesunate 200mg	77,896.73	59,858.70	57,705.24	52,660.84	48,940.8	42,415.90	30,122.15	369,600.44	MoH	PMI/USAID
	Procurement and Supply Management Cost (PSM)	1,210,918.87	947,462.19	1,154,623.33	1,042,067.21	1,058,120.89	938,922.13	709,151.46	7,061,266.09	MoH	GF/PMI/ USAID
	Quartely meetings on case management working groups	24,000.00	24,000.00	24,000.00	24,000.00	24, 000.00	24,000.00	24,000.00	168,000.00	MoH	PMI/USAID
	Quality assurance for Anti - malarials and RDTs	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	150,000.00	1,050,000.00	MoH	GF/PMI/ USAID/FDA
	sub total	13,494,107.59	10,596,084.05	12,874,856.67	11,636,739.36	11,813,329.80	10,502,143.40	7,974,666.08	78,891,926.94		
2.4	Integrated Community Case Management (iCCM)										

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Review/Develop treatment guidelines for CBA including flowcharts	50,000.00	-	50,000.00	-	50,000.00	-	-	150,000.00	MoH	PMI/USAID /GF	PLANNING & ADMIN
	iCCM Training - Refresher	374,431.69	767,584.97	1,180,161.89	1,612,887.911	3,719,722.75	5,930,891.28	8,250,293.40	21,835,973.90	MoH	UNICEF/GF	TRAINING
	iCCM Supervision	-	-	-	-	-	-	-	-		UNICEF/GF	MONITORING AND EVALUATION
	iCCM communication and transport for CHWs	534,902.42	1,096,549.95	1,685,945.56	2,304,125.59	1,328,472.41	2,118,175.46	2,946,533.36	12,014,704.75	MoH	UNICEF/GF	COMMUNICATION
	Job Aids & Decision support	15,057.50	30,867.88	47,459.37	64,861.14	149,585.99	238,506.56	331,779.66	878,118.09	MoH	UNICEF/GF	COMMUNICATION
	Educational Materials	15,057.50	30,867.88	47,459.37	64,861.14	149,585.99	238,506.56	331,779.66	878,118.09	MoH	UNICEF/GF	COMMUNICATION
	Visit Register	5,028.08	10,307.57	15,847.89	21,658.78	49,950.56	79,643.40	110,789.65	293,225.94	MoH	UNICEF/GF	PLANNING & ADMIN
	Stock Register	5,028.08	10,307.57	15,847.89	21,658.78	49,950.56	79,643.40	110,789.65	293,225.94	MoH	UNICEF/GF	PLANNING & ADMIN
	Referral Cards	1,337.26	2,741.37	4,214.86	5,760.31	13,284.72	21,181.75	29,465.33	77,985.62	MoH	UNICEF/GF	PLANNING & ADMIN
	Conduct quarterly review meetings for with CHOs assigned to the communities	234,360..00	-	-	-	-	-	-	234,360.00	MoH	UNICEF/GF	PLANNING & ADMIN
	Conduct quarterly supportive supervision of CBAs	15,000.00	15,750.00	16,537.50	17,364.38	18,232.59	19,144.22	20,101.43	122,130.13	MoH	UNICEF/GF	MONITORING AND EVALUATION

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	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	sub-total	1,250,202.54	1,964,977.20	3,063,474.32	4,113,178.03	5,528,785.60	8,725,692.62	12,131,532.15	36,777,842.46			
2.5	Improve access to diagnosis and treatment in the private sector											
	Private sector Co payment for mRDTs	-	3,167,683.80	3,584,762.17	4,470,710.53	5,190,991.67	5,807,714.90	6,095,383.13	28,317,246.19	Private/ First Line buyers	MOH	HEALTH PRODUCTS AND HEALTH EQUIPMENTS
	Transportation cost for private sector co paid mRDTs	-	316,768.38	358,476.22	447,071.05	519,099.17	545,054.13	572,306.83	2,758, 775.77	Private/ First Line buyers	MOH	PROCUREMENT AND SUPPLY MANAGEMENT (PSM)
	Co-payment for the private sector ACTs	20,542,650.00	24,779,314.86	24,035,935.41	23,314,85735	22,149,114. 48	22,149,114.48	22,149,114.48	159,120,101.07	Private/ First Line buyers	MOH/GF	MEDICINES & PHARMAC-EUTICALS
	Transportation cost for private sector co paid ACTs	2,054,265.00	2,477,93149	2,403,59354	2,331,485.74	2,214,911.45	2,214,911.45	2,214,91145	15,912,010.11	Private/ First Line buyers	MOH/GF	PROCUREMENT AND SUPPLY MANAGEMENT (PSM)
	Conduct Quarterly Copayment Task Force Meetings	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	28,000.00	MOH	PRIVATE SECTOR COPAYMENT COMMITTEE	PLANNING & ADMIN
	Supportive interventions for the Implementa-tion Private Sector Copayment Mechanism	78,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	45,000.00	348,000.00	Private/ First Line buyers	MOH	PLANNING & ADMIN

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	sub total (Private sector)	22,678,915.00	30,790,698.53	30,431,767.34	30,613,124.67	30,123,116.77	30,765,794.95	31,080,715.88	206,484,133.15			
	Total for Objective 2	47,394,662.64	50,362,839.98	54,721,291.14	53,451,649.56	55,883,931.69	56,373,062.83	61,071,764.62	379,259,202.46			
Objective 3		To strengthen and maintain capacity for programme management and partnership coordination to achieve malaria programme objectives at all levels of the health care system by 2020										
3.1	Programme Management, leadership and Governance											
	Rental and management charge for Northern zone office	3,600.00	-	2,500.00	2,625.00	2,756.25	2,894.06	3,038.77	17,414.08	MoH		PLANNING $ ADMIN
	Office space for Civil Society	4,800.00	5,040.00	5,292.00	5,556.60	5,834.43	6,126.15	6,432.46	39,081.64	NGO	MOH	PLANNING $ ADMIN
	Support for staff of National civil society in malaria control	-	28,800.00	28,800.00	28,800.00	28,800.00	28,800.00	28,800.00	172,800.00	NGO	MOH	PLANNING $ ADMIN
	Admin cost for National civil society in malaria control	-	3,600.00	3,600.00	3,600.00	3,600.00	3,600.00	3,600.00	21,600.00	NGO	MOH	PLANNING $ ADMIN
	Procurement of computers, printers and IT related accessories	-	24,000.00	-	24,000.00	-	24,000.00	-	72,000.00	MoH		INFRASTRUCTURE & OTHER EQUIP

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Procurement of office supplies and consumables (stationery etc.)	100,000.	150,000.00	200,000.00	220,000.00	242,000.00	266,200.00	300,000.00	1,478,200.00	MoH		INFRASTRUCTURE & OTHER EQUIP
	Cost for Telephone, courier services etc.	54,240.00	54,240.00	56,952.00	59,799.60	62,789.58	65,929.06	69,225.51	423,175.75	MoH		OVERHEADS
	HR cost for NMCP staff, GF and GoG paid staff(salaries and allowances),	779,238.75	818,200.69	859,110.72	902,066.26	947,169.57	994,528.05	1,044,254.45	6,344,568.49	MoH		HUMAN RESOURCE
	Government expenditure on salaries and wages for staff time spend managing malaria in health facilities and communities	37,391, 527.00	40,760, 926.00	55,068. 666.00	55,068, 666.00	55,068, 666.00	55,068, 666.00	55,068, 666.00	353,495, 783.00	MoH		HUMAN RESOURCE
	Government expenditure on malaria related infrustrature, maintenance and equipments	44,830, 439.00	54,613, 682.00	68,836, 431.00	86,733, 903.00	86,733, 903.00	86,733, 903.00	86,733, 903.00	165,00	MoH		INFRASTRUCTURE & OTHER EQUIP
	Infrastructure and other equipment (NMCP)	124,975.61	124,975.61	124,975.61	124,975.61	124,975.61	124,975.61	124,975.61	874,829.26			INFRASTRUCTURE & OTHER EQUIP

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Utility services (water/electricity)	10,650.67	11,183.20	11,742.36	12,329.48	12,945.96	13,593.25	14,272.92	86,717.85	MoH		OVERHEADS
	Develop/review, print and disseminate malaria programme policy	-	70,000.00	-	70,000.00	70,000.00	-	-	210,000.00	MoH		PLANNING & ADMIN
	Bank charges	5,245.65	5,507.93	5,783.33	6,072.50	6,376.12	6,694.93	7,029.67	42,710.13	MoH		OVERHEADS
	Procure vehicles	-	-	-	395,000.00	-			395,000.00	MoH		INFRASTRUCTURE& OTHER EQUIPMENT
	Cost of maitenance /running cost (this includes 24 NMCP vehicles and 3 vehicles for CSOs)	87,750.00	87,750.00	87,750.00	87,750.00	87,750.00	87,750.00	87,750.00	614,250.00	MoH		INFRASTRUCTURE & OTHER EQUIP
	Regular refresher training for the drivers in NMCP national office	5,000.00	5,250.00	5,512.50	5,788.13	6,077.53	6,381.41	6,700.48	40,710.04	MoH		TRAINING
	Support annual report publication, peer journals and disssemination	20,000.00	20,000.00	20,000.00	20,0 00.00	20,000.00	21,000.00	22,050.00	143,050.00	MoH	ACADEMIA	COMMUNICATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	sub -total	83,417,466.68	96,783,155.43	125,317,115.52	143,770,932.17	143,423,644.05	143,455,041.52	143,520,698.86	879,688,054.23			
	Improve capacity for programme management at all levels								-			
	Trainings and workshops for capacity building of staff of NMCP	140,000.00	140,000.00	140,000.0	140,000.00	140,000.00	140,000.0	140,000.00	980,000.00	MoH	PMI/USAID	TRAINING
	Build capacity for PSM (quantification, forecasting, procurement proceses) to manage stocks at the national and regional levels	24,000.00	-	24,000.00	-	24,000.00	-	24,000.00	96,000.00	MoH	PMI/USAID /DFID	TRAINING
	Recruit needed NMCP staff (epidemeologist and M&E specialist) and support for resource mobilization	234,525.00	234,525.00	234,525.00	-				703,575.00	MoH	DFID	TRAINING
	Participate in international conferences	100,000.00	13,272.00	13,935.60	14,632.38	15,364.00	16,132.20	16,938.81	190,274.99	MoH	PMI/USAID	PLANNING & ADMIN

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Support Civil society/private sector participation to intl conferences	30,000.00	33,000.00	36,300.00	39,930.00	43,923.00	46,119.15	48,425.11	277,697.26	MoH	NGO/ PRIVATE SECTOR	PLANNING & ADMIN
	Sub -total	528,525.00	420,797.00	448,760.60	194,562.38	223,287.00	202,251.35	229,363.92	2,247,547.24			
3.3	Facilitate biannual Malaria Interagency Coordinating Committee (MICC) meetings											
	Conduct biannual MICC meetings	11,500.20	12,075.21	12,678.97	13,312.92	13,978.56	14,677.49	15,411.37	93,634.73			
	sub -total	11,500.20	12,075.21	12,678.97	13,312.92	13,978.56	14,677.49	15,411.37	93,634.73			
3.4	Advocate at corporate and parliamentary levels for increase resource allocation to malaria control activities											
	Lobby Parliament to allocate funding to malaria based on evidence of achievements in the past 10years	10,000.00	10,500.00	11,025.00	11,576.25	12,155.06	12,762.82	13,400.96	81,420.08	MoH	MICC COMMITTEE	PLANNING & ADMIN
	Lobby parliament to require district assemblies to report annually on the district assembly common fund % allocated for malaria control	10,000 .00	105,000.00	110,250.00	115,762.50	121,550.63	127,628.16	134,009.56	724,200.85	MoH	PARLIAMENTARY SELECTCTEE ON HEALTH	COMMUNICATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Establish a corporate/ private sector forum on malaria	24,000.00	25,200.00	26,460.00	27,783.00	29,172.15	30,630.76	32,162.30	195,408.20	MoH	PARLIA MENTARY SELECT CTEE ON HEALTH	COMMUNI CATION
	Encourage corporate bodies to adopt a community each for malaria control	15,000.00	15,750.00	16,537.50	17,364.38	18,232.59	19,144.22	20,101.43	122,130.13	MoH	PRIVATE SECTOR /MEDIA	PLANNING & ADMIN
	Establish a Partners Recognition Nite annual event	25,000.00	26,250.00	27,562.50	28,940.63	30,387.66	31,907.04	33,502.39	203,550.21	MoH	CORPORATE BODIES/ MEDIA	PLANNING & ADMIN
	sub-total	84,000.00	182,700.00	191,835.	201,426.75	211,498.09	222,072.99	233,176.64	1,326,709.47			
3.5	Develop and implement a financing sustain ability plan for accelerated malaria control											
	Develop and implement a resource mobilization plan	12,000.00	12,600.00	13,230.00	13,891.50	14,586.08	15,315.38	16,081.15	97,704.10	MoH	DFID	PLANNING & ADMIN
	Identify Partners committed to support various activities of malaria control and prevention and leverage with their objectives and tar gets	10,000.00	10,500.00	11,025.00	11,576.25	12,155.06	12,762.82	1.05	68,020.18	MoH	NGO/ PRIVATE SE CTOR	PLANNING & ADMIN
	Conduct audits internal and external audits	20,000.00	21,000.00	22,050.00	23,152.50	24,310.13	25,525.63	26,801.91	162,840.17	MoH	AUDIT DEPT	PLANNING & ADMIN

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Training on financial management at regional and district levels	25,000.00	26,250.00	27,562.50	28,940.63	30,387.66	31,907.04	33,502.39	203,550.21	MoH	FINANCE	TRAINING
	Supportive supervision for financial management	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	-	-	100,000.00	MoH	AUDIT DEPT	PLANNING & ADMIN
	sub -total	87,000.	90,350.0	93,867.50	97,560.88	101,438.92	85,510.86	76,386.50	632,114.66			
3.6	Ensure efficient and effective procurement and logistics management											
	Support Integration and Harmonization of LMIS	40,000.00	42,000.00	44,100.00	46,305.00	48,620.25	51,051.26	99,549.96	371,626.47	MoH	PMI/UAID	MONITORING & EVALUATION
	Annual Physical Stock checks at regional medical stores	5,000.00	5,250.00	5,512.50	5,788.13	6,077.53	6,381.41	6,700.48	40,710.04	MoH	PMI/USAID	MONITORING & EVALUATION
	sub -total	45,000.00	47,250.00	49,612.50	52,093.13	54,697.78	57,432.6	106,250.44	412,336.52			
3.7	Ensure alignment with West Africa Health Organization Malaria Strategic Plan and cross -border collaboration											
	Development of cross border regional strategic plan	13,399.92	14,069.92	14,773.41	15,512.08	16,287.69	17,102.07	17,957.17	109,102.26	MoH	WAHO/ RBM	PLANNING & ADMIN
	Support cross - border malaria Initiatives meetings	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	30,000.00	210,000.00	MoH	WAHO/ RBM/ECOWAS	PLANNING & ADMIN

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Resource mobilization	50,000.00	50,000.00	-	50,000.00	-	-	50,000.00	200,000.00	MoH	WAHO/ RBM/EC OWAS	PLANNING & ADMIN
	Advocacy for implementation of Cross border regional strategy	15,000.00	15,750.00	16,537.50	17,364.38	18,232.59	19,144.22	20,101.43	122,130.13	MoH	WAHO/ RBM/EC OWAS	PLANNING & ADMIN
	sub total	108,399.92	109,819.92	61,310.91	112,876.46	64,520.28	66,246.29	118,058.61	641,232.39			
	total for Objective 3 (Program Management	84,28 891.801,	97,646,1 47.56	126,175,1 81.01	144,442,7 64.68	144,093, 064.68	144,103, 233.18	144,299, 346.34	885,041,6 29.24			
Objective 4		To strengthen the system for the surveillance and monitoring and evaluation in order to ensure timely availability of quality, consistent and relevant malaria data at all levels by 2020										
4.1	Conduct Operations Research to inform programme direction											
	Sentinel sites studies for Antimalarial drugs efficacy monitoring	150,000.00	-	181,500.00	-	219,615.00	241,576.50	265,734.15	1,058,425.65	MoH	NOGUC HI/PMI/ DFID	MONITORING & EVALUATION
	Sentinel sites studies for Parasite prevalence tracking at 26 sites	150,000.00	150,000.00	150,000.00	150,000.00	150,00.00	150,000.00	150,000.00	1,050,000.00	MoH	NOGUC HI/PMI/ USAID	MONITORING & EVALUATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Conduct cohort event monitoring studies to assess safety and quality of ACTs	31,800.00	34,980.00	38,478.00	42,325.80	46,558.83	51,214.22	56,335.64	301,692.04	MoH	FOOD AND DRUGS AUTHORITY (FDA)	MONITORING & EVALUATION
	Health Facility Survey and Case Management Quality Assessment	100,000.	-	120,000.00	-	144,000.00	-	-	364,000.00	MoH	RESEARCH UNIT/NMCP	MONITORING & EVALUATING
	IPTp impact studies	-	150,000.00	-	-	-	-	-	150,000.00	MoH	RESEARCH UNIT	MONITORING & EVALUATION
	Rapid Impact Assessment	-	-	-	120,000.00	-	-	-	120,000.00	MoH	RESEARCH UNIT/NMCP	MONITORING & EVALUATION
	Efficacy and Durability of LLINs Monitoring	220,000.00	-	-	286,000.00	-	-	-	506,000.00	MoH	NOGUCHI/ PMI/USAID	MONITORING & EVALUATION
	Insecticide Resistance Monitoring through sentinel sites	150,000.00	165,000.00	181,500.00	199,650.00	219,615.00	241,576.50	265,734.15	1,423,075.65	MoH	NOGUCHI/PMI/ USAID	MONITORING & EVALUATION
	sub -total	801,800.00	499,980.00	671,478.00	797,975.80	779,788.38	684,367.22	737,803.94	4,973,193.34			
4.2	Enhance routine surveillance and use											
	Provision of Tablets/Laptops for data entry at facility level	-	50,000.00	-	60,000.00	-	-	-	110,000.00	MoH	PMI/USAID	MONITORING & EVALUATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Orientation of regional level staff / faciltators (TOT) on data management at national level	$20,200	$0	$22,220	$0	$2 4,442	$0	$26,886	93,748.20	MoH	PMI/US AID	TRAINING
	Updated training of district data managers by regional facilitators/ data managers	$109,028	$0	$119,931	$0	$131,924	$0	$145,116	505,998.95	MoH	PMI/US AID	TRAINING
	Orientation of facility level staff on revised reporting tools (Public Sector)	$239,820	$0	$289,740	$0	$318,714	$0	$350,585	1,198,859.40	MoH	PMI/US AID	TRAINING
	Orientation of facility level staff on revised reporting tools (Private Sector and Teaching Hospitals) to increase private sector DHIMS reporting	$0	$53,339	$0	$64,007	$0	$76,808	$0	194,153.96	MoH	PMI/US AID	TRAINING
	Updating National Level staff on new M&E strategies via international courses	$21,000	$23,100	$25,410	$27,951	$30,746	$33,821	$37,203	199,230.59	MoH	PMI/US AID	TRAINING

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Consulting Room Register Training for prescribers	356,600.00	-	427,920.00	-	513,504.00	-	616,204.80	1,914,228.80	MoH	PMI/US AID	TRAINING
	Provide closed user group telecommu-nication for M&E officers linked up to regional and district malaria focal persons (Closed User Group)	$2,000	$2,200	$2,400	$2,001	$2,200	$2,420	$2,662	15,883.00	MoH	PMI/US AID	MONITORING & EVALUATION
	Establish and maintain an archival system for NMCP data	$0	$80,000	$20,000	$20,000	$0	$0	$0	120,000.00	MoH	PMI/US AID	MONITORING & EVALUATION
	- sub total	$751,648	$211,9399	$911,251	$177,952	$1,025,922	$117,880	$1,183,972	4,380,564.41			
	Supervisi on - Technical											
	Public supervisory visits - National visiting regional	$60,315	$67,811	$70,731	$73,796	$75,676	$79,224	$83,224	510,777.89	MoH	PMI/USAID	MONITORING & EVALUATION
	Public supervisory visits - Regional visiting district	$202,800	$208,0800	$133,888	$147,277	$154,641	$190,034	$259,038	1,295,757.44	MoH	PMI/USAID	MONITORING & EVALUATION
	Public supervisory visits - District visiting sub - district and facilities	$693,600	$752,960	$918,256	$964,169	$1,012,377	$1,062,996	$1,116,146	6,520,504.05	MoH	PMI/USAID	MONITORING & EVALUATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Private Health Facilities Monitoring	$26,500	$29,150	$32,065	$35,272	$38,799	$42 ,679	$46,947	251,411.69	PRIVATE MED ASS	RMI/USAID	MONITORING & EVALUATION
	Meeting private health facility heads on reporting	$62,260	$68,486	$75,335	$82,868	$91,155	$100,271	$110,298	590,672.05	MoH	PRIVATE MED ASS	MONITORNGI & EVALUATONI
	sub -total	$1,045,475	$1,126,487	$1,230,257	$1,303,382	$1,372,648	$1,475,204	$1,615,653	9,169,123.12			
	sub -total for 4.2	$1,797,123	$1,338,426	$2,141,526	$1,481,333	$2,398,570	$1, 593,084	$2,799,625	$13,549,688			
4.3	Enhance coordinated monitoring of programme progress											
	Surveillance Monitoring and Evaluation Technical Working Group Meetings (quarterly)	24,000.00	24,000 .00	24,000.00	24,000.00	24,000.00	24,000.00	24,000.00	168,000.00	MoH	M & E WORK GROUP	MONITORNGI & EVALUATION
	Annual review and planning meetings with regions on malaria control programme	31,374.00	31,374.00	31,374.00	31,374.00	31,374.00	31,374.00	31,374.00	219,618.00	MoH	NGO/PRIVATE SECTOR	PLANNING & ADMIN
	Annual review and planning meeting with all stakeholders involved in malaria control programme implementation (GHS, MoH services, NGOs, Partners, health regions)	45,180.00	45,180.00	45,180.00	45,180.00	45,180.00	45,180.00	45,180.00	316,260.00	MoH	STAKEHOLDERS	PLANNING & ADMIN

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	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	sub -total	100,554.00	100,554.0	100,554.00	100,554.00	100,554.00	100,554.00	100,554.00	703,878.00			
4.4												
	Malaria Indicator Survey (Stratify malaria endemicity by districts towards malaria elimination)	-	-	1,980, 500.20	-	-	-	-	1,980,500.20	MoH	STATISTICAL SERVICE	MONITORING & EVALUATION
	NMCP contribution to DHS and MICS for Malaria Component (stratify malaria endemicity by dis tricts towards elimination)	750,000.00	-	-	-	-	-	-	750,000.00	MoH	STATISTICAL SERVICE	MONITORING & EVALUATION
	Household - based IRS acceptability survey	-	100,000.0	-	120,000. 00	-	-	-	220,000.00	MoH	RESEARCH UNIT	MONITORING & EVALUATION
	sub -total	750,000.00	100,000.0	1,980, 500.20	120,000.00	-	-	-	2,950,500.20			
4.5	Conduct mid and end of term reviews											
	Conduct Perio dic Data Review (in 10 Regions)	232,900.00	232,9 900.00	244,545.00	256,772.25	269,610.86	283,091.41	297,245.98	1,817,065.49	MoH	PMI/USAID	MONITORING & EVALUATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Malaria Program performanc e mid -term evaluation	-	-	120,000.00	-	-	-	-	120,000.00	MoH	RBM/WHO	MONITORING & EVALUATION
	Malaria Program Strategic Plan 2018 - 2020 final evaluation	-	-	-	-	200,000.00	-	-	200,000.00	MoH	RBM/WHO	MONITORI & EVALUATION
	sub -total	232,900.00	232,900.00	364,545.0	256,772.25	469,610.86	283,091.41	297,245.98	2,137,065.49			
4.6	Rapid Response to Malaria emergency situations											
	Update IDSR to cover malaria in emergency situations	-	20,000.00	-	-	-	-	-	20,000.00	MoH	RBM/WHO	MONITORNG & EVALUATION
	Monitoring of malaria patterns in collaboration with meteorologi cal services department	-	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	60,000.00	MoH	METEO ROLOGI CAL DEPT	MONITORING & EVALUATION
	sub -total	-	30,000.00	10,000.00	10,000.00	10,000.00	10,000.00	10,000.00	80,000.00			
4.7	Improve malaria data management and quality											
	Conduct routine data quality audits	377,960.00	405,993.64	436,331.60	469,964.76	506,961.24	547,657 .36	592,423.01	3,337,291.69	MoH	PMI/USAID	MONITORING & EVALUATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Develop/Update standardized M&E procedures, tools and guidelines	$20,000	$0	$0	$22,000	$28,000	$0	$0	70,000.00	MoH	PMI/USAID	MONITORING & EVALUATION
	Printing of harmonized Malaria data reporting tools	$209,000	$0	$209,0.00	$0	$209,000	$0	$209,000	836,000.00	MoH	PMI/USAID	PLANNING & ADMIN
	Develop database for common reporting and data sharing by partners (non - routine malaria activities)	$0	$10,000	$0	$0	$0	$0	$0	10,000.00	MoH	PMI/USAID	MONITORING & EVALUATION
	Develop/Update guidelines for data use/sharing (District Data Utilization Manual)	$0	$10,000	$0	$0	$0	$0	$0	10,000.00	MoH	PMI/USAID	MONITORING & EVALUATION
	Print guidelines for data use/sharing	$30,000	$0	$36,000	$0	$43,200	$0	$47,520	156,720.00	MoH	PMI/USAID	MONITORING & EVALUATION
	Upgrade ICT infrastructure (Server, Applications and Accessories) to support DHIMS	-	50,000.00	-	60,000.00	-	-	-	110,000.00	MoH	ICT CONSULTANT/PMI	INFRASTRUCTURE & EQUIPMENT

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Procure printers for District Management team for malaria control	-	50,000.00	-	60,000.00	-	-	-	110,000.00	MoH	PMI/USAID	INFRASTR UCTURE & EQUIPMENT
	Maintenance of ICT infrastructu re at NMCP	12,000.00	11,000.00	12,100.00	13,310.00	14,641.00	16,105.10	17,715.61	96,871.71	MoH	ICT CONSUL TANT/PMI	INFRASTR UCTURE & EQUIPMENT
	Procure corporate antivirus software for the NMCP computers	2,000.00	2,200.00	2,400.00	2,600.00	2,800.00	3,080.00	3,388.00	18,468.00	MoH	ICT CONSUL TANT/PMI	PLANNING & ADMIN
	Support district Data Verification Teams	-	324,00.00	324,00.00	324,000.00	324,000.	324,000.00	324,000.00	1,944,000.00	MoH	PMI/USAID	MONITORING & EVALUATION
	Support regional Data Verification Teams	-	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00	90,000.00	MoH	PMI/USAID	MONITORING & EVALUATION
	sub total	650,960.00	878,19	1,034, 831.60	966,874.76	1,143,602.24	905,842.46	1,209,046.71				
4.8	Dissemination survey and surveillance reports											
	Development and production of bulletin (feed into malaria watch magazine)	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	35,000.00	MoH	ACADEMIA	MONITORING & EVALUATION
	Establish annual data use and dissemination exhibition by districts and regions at national levels	80,750.00	84,787.50	89,026.88	89,026.88	89,026.88	89,026.88	93,478.22	615,123.22	MoH	PMI/USAID	MONITORING & EVALUATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Documentation of Best Practices	20,000.00	22,000.00	24,200.00	26,620.00	29,282.00	32,210.20	35,431.22	189,743.42	MoH	RBM/WHO	MONITORING & EVALUATION
	Malaria modeling and mapping for districts in Ghana (Develop and print national country malaria profile (malaria mapping))	103,404.00		-	103,404.00	-	-	113,744.40	320,552.40	MoH	RBM/WHO	MONITORING & EVALUATION
	Semi-annual seminars to disseminate research findings	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	140,000.00	MoH	RESEARCH UNIT	MONITORING & EVALUATION
	sub -total	229,154.00	131,787.50	138,226.88	244,050.88	143,308.88	146,237.08	267,653.84	1,300,419.04			
	Total for Objective 4 (M&E)	4,562,491.00	3,311,841.14	6,441,661.48	3,977,561.09	5,045,434.77	3,723,176.38	5,421,929.16	32,484,095.00			
Objective 5	To increase awareness and knowledge of the entire population on malaria prevention and control so as to improve uptake and correct use of all interventions by 2020											
5.1	Develop a comprehensive national malaria communcation strategy											

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Print and disseminate the communication strategy	-	10,000.00		-	10,000.00	-	-	20,000.00	MoH	COMMUNICATION WRK GRP	PLANNING & ADMIN
	Formative research for SBCC campaigns	-	50,000.00	55,000.00	60,500.00	66,550.00	73,205.00	80,525.50	385,780.50	MoH	RESEARCH UNIT	MONITORING & EVALUATION
	subtotal		60,00.00	55,000.00	110,000.00	76,550.00	73,205.00	130,5	550,280.50			
5.2	Advocacy for sustained malaria control											
	Establishment of lobby groups (District Malaria Advocacy Teams)	9,520.00	9,996.00	10,495.80	11,020.59	11,571.62	12,150.20	12,757.71	77,511.92	MoH	MEDIADIST ASSEMBLIES	COMMUNICATION
	Preparing progress reports and updates	1,500.00	1,575.00	1,653.75	1,736.44	1,823.26	1,914.42	2,010.14	12,213.01	MoH	COMMUNICATION WRK GRP	COMMUNICATION
	Dissemination of progress reports, update stories of interest	22,000.00	23,100.00	24,255.00	25,467.75	26,741.14	28,078.19	29,482.10	179,124.19	MoH	COMMUNICATION WRK GRP	COMMUNICATION
	Support for Product champions to promote the use of RDTs and increase provider confidence in testing	198,000.00	207,900.00	218,295.00	-	-	-	-	624,195.00	MoH	MEDIA AGAINST MALARIA	COMMUNICATION

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	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020										
	Hold stakeholder advocacy and sensitization awareness meetings with political, opinion and traditional leaders	60,000.00	66,00.00	72,600.00	79,860.00	87,846.00	-	-	366,306.00	MoH	COMMUNICATION WRK GRP	COMMUNICATION
	Support the institutionalization of advocacy on cross border collaboration on malaria control	15,000.00	15,750.00	16,537.50	17,364.38	18,232.59	19,144.22	20,101.43	122,130.13	MoH	COMMUNICATION WRK GRP	COMMUNICATION
	sub -total	306,020.00	324,321.00	343,837.05	135,449.15	146,214.61	61,287.04	64,351.39	1,381,480.25	MoH		
5.3	Advocacy for conforming to test treat and track											
	Workplace advocacy for adherence to diagnosis and treatment guidelines	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00	35,000.00	MoH	COMMUNICATION WRK GRP	COMMUNICATION
	sub -total	5,000.00	5,000.000	5,000.00	5,000.00	5,000.000	5,000.00	5,000.00	35,000.00			
5.4	Sustained education on malaria prevention at all levels											

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020											
	Airing of radio shows on malaria management (Case	320,000.00	352,000.00	387,200.00	425,920.00	468,512.00	515,363.20	566,899.52	3,035,894.72	MoH	COMMUNICATION WRK GRP	COMMUNICATION
	Airing of TV shows on malaria interventions (Case management & LLINs)	420,000.00	462,000.00	508,200.00	559,020.00	614,922.00	614,922.00	614,922.00	3,793,986.00	MoH	COMMUNICATION WRK GRP	COMMUNICATION
	Use of print media for education (Case management & LLINs)	128,000.00	140,800.00	154,880.00	170,368.00	187,404.08	187,404.80	187,404.80	1,156,262.40	MoH	COMMUNICATION WRK GRP	COMMUNICATION
	sub -total	868,000.00	954,800.00	1,050,280.00	1,155,308.00	1,270,838.80	1,317,690.00	1,369,226.32	7,986,143.12			
5.5	Community mobilization to enhance uptake of malaria interventions								-			
	Support for community level advocacy and sensitisation by civil society Orgnanizations and Community based organization (for all malaria interventions including IPT follow-up and vector control)	1,010,880.00	1,061,424.00	1,114,495.20	1,170,219.96	1,228,730.96	1,290,167.51	1,354,675.88	8,230,593.51	MoH	CSOs/FBOs	COMMUNICATION

Details Budget for NSP 2014-2020

	MALARIA NATIONAL STRATEGIC PLAN 2014 -2020								
	Establishment Community listener groups	17,280.00	19,008.00	20,908.80	22,999.68	25,299.65	27,829.61	30,612.57	163,938.31
	Hold meetings of the national subcommittee on SBCC, communication and advocacy	6,000.00	6,600.00	7,260.00	7,986.00	8,784.60	8,784.60	8,784.60	54,199.80
	Train and orient journalist and media personnel	127,700.00	22,000.00	24,200.00	26,620.00	29,282.00	29,282.00	29,282.00	288,366.00
	Support commemor ative events to increase malaria awareness	125,000.00	137,500.00	151,250.00	166,375.00	183,012.50	183,012.50	183,012.50	1,129,162.50
	sub-total	1,286,860.00	1,246,532.00	1,31 8,114.00	1,394,200.64	1,475,109.71	1,539,076.22	1,606,367.56	9,866,260.12
	Total for Objective 5(Awareness & Knowledge)	2,510,880.00	2,590,653.00	2,772,231.05	2,799,957.79	2,973,713.12	2,996,258.26	3,175,470.77	19,819,163.99
	TOTAL NSP BUDGET IN USD	258,923,452.68	267,604,462.08	293,127,027.90	340,117,801.09	347,299,919.38	313,999,442.13	404,677,339.32	2,225,749,444.58
	TOTAL BUDGET IN GHc	777,547,128.39	803,616,199.63	880,260,464.79	1,021,373,756.66	1,042,941,657.91	942,940,324.72	1,215,246,049.98	6,683,925,582.07
	1USD = 3.003 (Bank of Ghana Rate, June 2014)								