

Republic of Namibia

*Ministry of Health and Social Services*

# Malaria Strategic Plan (2010-2016)

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# Forward

**N**amibia has arrived at a critical junction in its fight against malaria. The country has set and exceeded targets set in Abuja, at the World Health Assembly, by the Millennium Development Goals, as well as global Roll Back Malaria targets to cut malaria morbidity and mortality by 2010, and because of the significant inroads made against malaria, our country is in a unique position to move towards eliminating the local transmission of malaria. The Ministry of Health and Social Services (MoHSS), with the support of its partners, has implemented a strong malaria control programme, steadily improving the coverage and quality of indoor residual spraying, introducing long lasting insecticide-treated nets, and increasing access to rapid malaria diagnosis and new effective artemisinin-based combination treatment.

The MoHSS, through its National Vector-borne Diseases Control Programme (NVDCP), has undertaken to work towards the ambitious vision of a malaria-free Namibia by 2020. Over the next 6 years, our priority will be to consolidate the gains we have made and maintain the downward trend in malaria morbidity and mortality, while strengthening capacity at regional level to ensure a more efficient delivery of services down to the community and household level.

The final report by a joint internal and external panel of technical reviewers who conducted an assessment of the country's malaria programme (August 2010) confirmed Namibia's potential to achieve elimination: "...with some reorientation and changes in policies, strategies, ... and program re-organization with increasing targeting and intensity of delivery of key interventions, it is feasible for the program to move towards pre-elimination by 2016 and towards a vision of malaria free Namibia by 2020." Access to our health system was also commended by the review team; anyone in our country is able to access malaria diagnosis and treatment services free of charge, in all health facilities, and this greatly enhances the potential for our malaria elimination program to succeed.

Moving forward, we recognize that malaria elimination is not "business as usual." Our programmes will be informed by a rigorous evidence base from which all interventions and activities need to be meticulously planned and executed. In particular, active surveillance with infection screening and early diagnosis of disease, targeted indoor spraying combined with other vector control interventions will be critical to removal of indigenous malaria foci and eventual interruption of transmission altogether. The organization and management of our interventions must extend to the community level and household level; community mobilization therefore has a key role to play in ensuring that all Namibians own and take part in this national goal.

In March of 2009, Namibia hosted the Inaugural meeting of the Elimination 8, a mechanism for eight Southern Africa Development Community (SADC) countries which have similarly committed to forging a sub-regional alliance to launch a united intensive offensive against malaria. Namibia will work with its neighboring countries and development partners to contribute to the malaria elimination goals of the eight individual countries, and the sub-region as a whole. In particular, we will work closely with our neighbors to put in place programs that increase access to malaria interventions in the border districts. I would like to thank the following for their support for Namibia's elimination goals – the World Health Organization (WHO), Roll Back Malaria (RBM), SADC, the Global Fund to Fight AIDS, TB, and Malaria (GFATM), the World Bank, the United Nations Children's Fund (UNICEF), the Global Health Group, the Clinton Health Access Initiative (CHAI), the Malaria Atlas Project, Society for Family Health (SFH), Anglican Diocese/Nets for Life, Red Cross, and Development Aid for People to People (DAPP). The Ministry would also like to invite additional partners, specifically our local business community and civil society, to lend their support to this effort towards a malaria-free Namibia by 2020.

  
  
**Dr. Richard Nchabi Kamwi, MP**  
Minister

# Preface

**T**he NVDCP has successfully introduced and rapidly scaled up all malaria control interventions prioritizing high risk districts and achieving overall MDG targets of halving morbidity and mortality. Trends in outpatient cases, inpatient cases, and deaths exhibit a decline of 78 percent, 87 percent, and 88 percent respectively between 2001 and 2008. In order to consolidate this remarkable progress, the MoHSS and its partners intend to strengthen and restructure the national malaria response, establishing core capacity at the community level - supported by district and regional level establishments - to implement a targeted, efficient response that covers all communities with prevention and treatment services.

Following the success of malaria control over the last ten years, and remarkable declines in local transmission of the disease, Namibia, has also been recognized as one of four countries in southern Africa that is well positioned to reorient the malaria program from a malaria control program to an elimination program. This Malaria Strategic Plan aims to make a major impact on transmission and reducing incidence to less than 1 case per 1,000 in each district by 2016; this will position Namibia to follow through with the complete interruption of indigenous transmission by 2020.

This pre-elimination Strategic Plan is therefore intended to guide the MoHSS, the Government of the Republic of Namibia (GRN) and their partners towards the elimination phase, in line with national and regional SADC and African Union (AU) targets. The Strategic Plan outlines the key objectives and strategic interventions in order to steer change from the current control strategy towards an elimination-appropriate strategy. The implementation of the elimination effort requires unprecedented support from all stakeholders and partners.

The MoHSS would like to extend its gratitude to all its partners and stakeholders who have assisted technically towards the development and finalization of this seminal Malaria Strategic Plan 2010-2016. Our special thanks go to the WHO, Southern Africa Malaria Elimination Support Team (SAMEST), Ministry of Defense (MoD), University of Namibia (UNAM), Namibia Institute of Pathology (NIP), SFH and DAPP. The Southern Africa Regional Network for Roll Back Malaria (SARN-RBM) also contributed generous financial resources towards the completion of this plan.



**Mr. K. Kahuure**  
Permanent Secretary

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# Acronyms

<b>ACT</b>	Artemisinin-based Combination Therapy
<b>ART + LUM</b>	Artemether + Lumefantrine
<b>ANC</b>	Ante-natal Clinic
<b>AU</b>	African Union
<b>BCC</b>	Behavior Change Communication
<b>CHW</b>	Community Health Worker
<b>CM</b>	Case Management
<b>CMO</b>	Chief Medical Officer
<b>DDT</b>	Dichloro-diphenyl-trichloroethane
<b>EPR</b>	Epidemic Preparedness and Response
<b>EHO/EHA</b>	Environmental Health Officer/ Environmental Health Assistant
<b>GFATM</b>	Global Fund to Fight AIDS, Tuberculosis and Malaria
<b>GIS</b>	Geographic Information System
<b>GRN</b>	Government of the Republic of Namibia
<b>HIS</b>	Health Information System
<b>HIV/AIDS</b>	Human Immuno-deficiency Virus/Acquired Immune Deficiency Syndrome
<b>HMIS</b>	Health Management Information System
<b>IMCI</b>	Integrated Management of Childhood Illnesses
<b>IPD</b>	Inpatient Department
<b>IPT</b>	Intermittent Presumptive Treatment
<b>IRS</b>	Indoor Residual Spraying
<b>ITN</b>	Insecticide-Treated Nets
<b>KABP</b>	Knowledge, Attitudes, Behavior and , Practices
<b>LLIN</b>	Long-lasting Insecticide-Treated Nets
<b>MARA</b>	Mapping Malaria Risk in Africa
<b>MDG</b>	Millennium Development Goals
<b>M&amp;E</b>	Monitoring & Evaluation
<b>MIS</b>	Malaria Indicator Survey
<b>MoHSS</b>	Ministry of Health and Social Services
<b>NDF</b>	Namibia Defense Force (Ministry of Defense)
<b>NDP3</b>	National Development Plan 3
<b>NGO</b>	Non-governmental organization
<b>NIP</b>	Namibia Institute of Pathology
<b>NPC</b>	National Planning Commission
<b>NVDCP</b>	National Vector-borne Diseases Control Programme
<b>OPD</b>	Outpatient Department
<b>PHC</b>	Primary Health Care
<b>PMO</b>	Principal Medical Officer
<b>QA/QC</b>	Quality Assurance/Quality Control
<b>RBM</b>	Roll Back Malaria
<b>RCC</b>	Rolling Continuation Channel
<b>RDT</b>	Rapid Diagnostic Test
<b>SADC</b>	Southern Africa Development Community
<b>SFH</b>	Society for Family Health
<b>SMS</b>	Short Messages Service
<b>SP</b>	Sulphadoxine Pyrimethamine
<b>TB</b>	Tuberculosis
<b>TET</b>	Therapeutic Efficacy Test
<b>TKMI</b>	Trans-Kunene Malaria Initiative
<b>UNAM</b>	University of Namibia
<b>UNICEF</b>	United Nations Children's Fund
<b>WHO</b>	World Health Organization

## PURPOSE OF THE STRATEGIC PLAN

The purpose of the Namibia Malaria Strategic Plan 2010 – 2016 is to guide the reorientation of the NVDCP towards its goal of embarking upon a full-scale malaria elimination programme by 2016. Giving continual attention to the 'cause and effect' relationship between the proposed interventions and the end-goal of being sufficiently prepared to embark upon elimination by 2016, this document is outlined as a framework for leadership towards this goal by the MoHSS, with support from various stakeholders; it will also guide annual operational planning among the NVDCP and those stakeholders. The Strategic Plan (together with the Monitoring and Evaluation Plan) will also serve to assist with benchmarking, monitoring, and periodic evaluation of performance, based on the goals, objectives, and target areas outlined in this strategy.

The Malaria Strategic Plan will provide the key strategic direction that will steer change from the current control strategy towards an elimination-appropriate strategy; it also considers the context in which this reorientation will occur, and proposes ways in which the opportunities and constraints of these external factors can be managed to achieve the larger vision of elimination.

This Strategic Plan will answer the following key questions.

1. What is the current malaria situation in Namibia and how has it evolved over the duration of the ending Roll Back Malaria Strategic Plan 2003 - 2007? What was the performance of the preceding Strategic Plan and what are the best practices and lessons learned?
2. What are the strengths, weaknesses, opportunities, and threats of the current approach towards malaria control, and what are the implications for elimination?
3. What factors, external to the NVDCP, will affect reorientation to elimination? (Health systems – public and private delivery of health care)
4. Which evidence-based interventions will be used to achieve the strategic shift, and how will they be adapted for different transmission risk areas?
5. What are the goals, objectives, and targets of Namibia with regards to pre-elimination by 2016?
6. What are the national policies that are in place (or need to be revised) to support this strategic shift?
7. How will this strategy be managed by the MoHSS/NVDCP and its malaria partners? How will partnerships be coordinated?
8. How will performance be monitored?

# Introduction

**N**amibia covers approximately 824,000 square kilometers and is bordered by the Atlantic Ocean to the west, Botswana and Zimbabwe to the east, South Africa to the south, and Angola and Zambia in the north. Namibia is a dry country with the Namib Desert stretching along the whole west coast, while the Kalahari Desert runs along the southeastern border with Botswana. The Namibian climate varies from arid and semi-arid to subtropical with temperatures between 5°C and 20°C. The hottest months of the year are January and February which coincides with the summer rainfall with limited showers beginning in October and continuing until April while May to September constitute the main winter months in the country.

The 2001 Population and Housing Census estimated the Namibian population at 1,830,330 people. The projected population for 2009 is 2,103,762. The country has a relatively young population, with 43 percent under the age of 15 years, and less than 4 percent over the age 65. Namibia's population resides mostly in rural areas - one in three people live in urban areas. Namibia is very sparsely populated (2 persons per square kilometer), with substantial regional variations. Almost two-thirds of the population lives in the four northern regions and less than one-tenth lives in the south.

## HEALTH SYSTEM IN NAMIBIA

Politically, Namibia is divided into 13 administrative regions and 108 constituencies. In the health sector the health delivery system is organized under 13 regional health management teams and 34 health districts coordinating committees. There are a total of 47 hospitals, 13 in the private and 34 in the public sector. Out of the 34 hospitals in the public sector, three are referral hospitals while the remaining 31 are district hospitals.

**Table 1: Number of public and private health facilities in Namibia**

Health Facility Type	Sector		Total
	Private	Public	
Hospital	13	34	47
Health Centre	9	44	40
Clinic	46	265	292
<b>Total</b>	<b>68</b>	<b>343</b>	<b>411</b>

The 2008 Health System Review documented that out of 295 clients interviewed at exit from 76 health facilities, 41.5 percent had travelled less than 5 km, 27 percent 5-10 km, 8 percent 11-20 km and 13 percent for more than 21 km. Namibia's capacity in health work force is 3 health workers per 1,000 population (above the WHO benchmark of 2.5). However, this marked a huge disparity between public and private sectors, i.e. 8.8/1,000 and 2.0/1,000 respectively. Within the public sector, the situation is compounded by chronic staff shortages amongst frontline workers (doctors and nurses)

In the country, hospitals provide a full range of medical services including diagnostic, treatment, pharmaceutical, care, counseling, rehabilitation and emergencies. They also serve as referral centers for the lower level facilities (health centers and clinics) and are available for 24 hours of the day. However, hospitals suffer from a general paucity of transport logistics for service delivery – to facilitate movement of medicines and supplies, and staff for outreach services and supervisory visits.

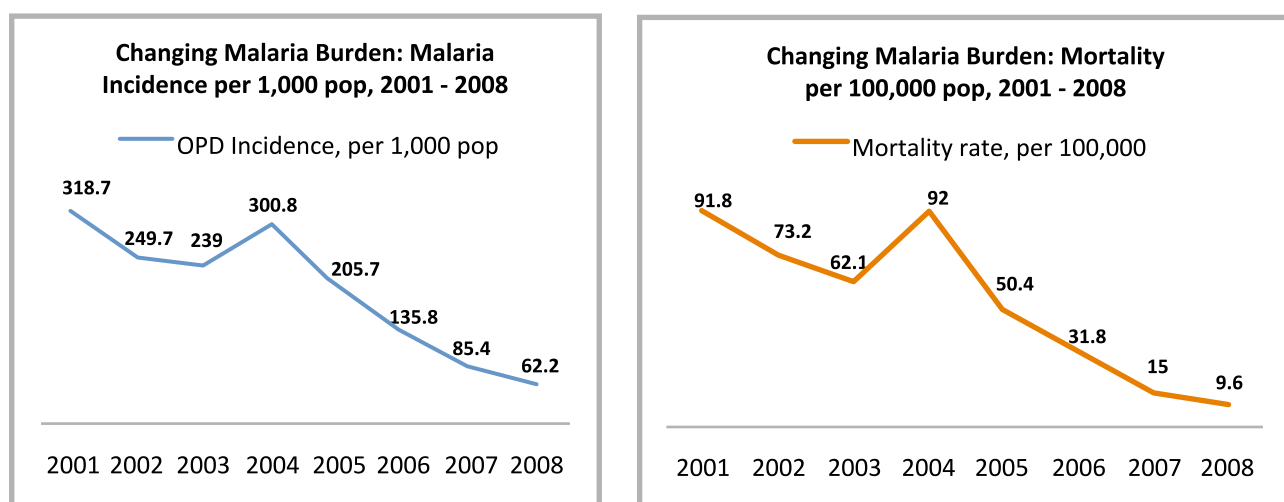
There has been some decentralization of the planning process, management and implementation of services and programmes from the central level to the regional and district levels. The Pharmaceutical Control and Inspections Subdivision under the Pharmaceutical

Services Division within the Tertiary Health Care and Clinical Support Services Directorate of the MoHSS is responsible for registration of medicines in Namibia and typically takes between three months and two years to register a product. Health facilities order products from Regional or Central Medical Stores every six weeks, and it usually takes about four weeks to process and deliver the order. However, intermittent orders are frequent. The government expenditure of health has shown a consistent increase over the years reaching 13.5% in 2004. However, it falls short of the 15% target set by the Abuja Declaration.

## MALARIA TRANSMISSION IN NAMIBIA

According to available data from NIP, 2009, 97% of malaria cases are due to infection with *Plasmodium falciparum*, while the remaining 3% are attributable to other species. Entomological studies carried out in 1965 indicated that all the three major malaria vectors of Sub-Saharan Africa, namely *Anopheles arabiensis*, *Anopheles gambiae* and *Anopheles funestus* were found in Namibia. However, recent studies have consistently shown the absence of the latter two, leaving *Anopheles arabiensis* as the solitary malaria vector in the country.

**Figure 1: Trends in Malaria OPD**



There has been a sustained impact on malaria disease burden, demonstrated through the reduction in the incidence and mortality of malaria. Namibia is witnessing a transition in the malaria epidemiology, with significant reductions in malaria morbidity and mortality. Understanding the spatial and temporal distribution of the changing malaria transmission is essential to guide and define the elimination strategy.

The population of Namibia is massively over-distributed, with over 60 percent of the population located along the northern regions of Namibia that border Angola. Low population density characterizes large swathes of the southern regions. Using case-incidence data (corrected for positive confirmed diagnosis) against modeled population density catchments from health facilities, it is estimated that the southern parts of Kunene and Omaheke regions, and all of Erongo, Hardap, Khomas and Karas regions are areas supporting malaria incidence of < 1 case per 10,000 population per annum. These areas are also affected by extreme aridity that would further limit transmission in these areas thus supporting a situation better described as almost “risk free”. Some risk may exist in the southern regions and it remains uncertain whether reported cases are imported or locally acquired due to time-limited mini-epidemics in certain years.

The foci of relatively higher transmission and high population density are located along the northern border. Further reductions in malaria risk in this area will only be possible with intensified and targeted interventions in local malaria transmission foci, and through joint efforts in cross-border interventions between neighboring counties – especially Angola and Zambia. Across the nine northern regions, malaria transmission is of low intensity and very over-distributed, spatially and temporarily.

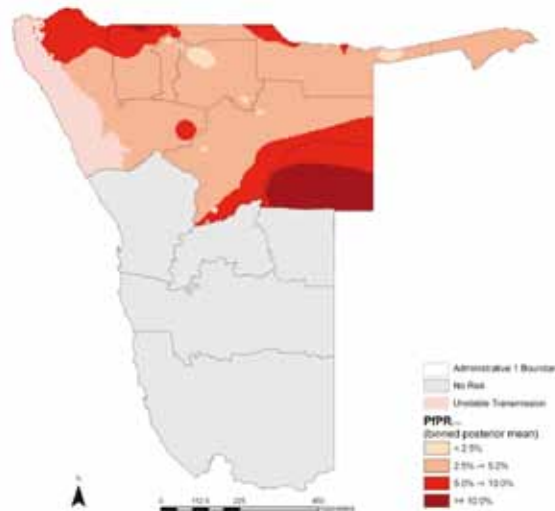


An exercise to develop an evidence-based assessment of the risk of malaria transmission in Namibia at the beginning of 2010 was conducted; the risk assessment includes the distributions of human population, malaria infection prevalence, case incidence data and remotely sensed climate data.

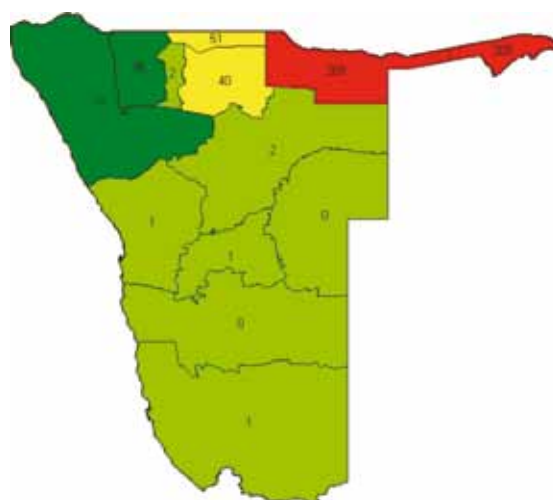
Based on this exercise, it is estimated that

- ⇒ Only 3% of Namibia's population live in areas where parasite prevalence is likely to be above 10%
- ⇒ Almost 50% of the population live in areas where parasite prevalence is <5% (not inclusive of risk free)
- ⇒ 30% live in areas that are nominally "malaria free".

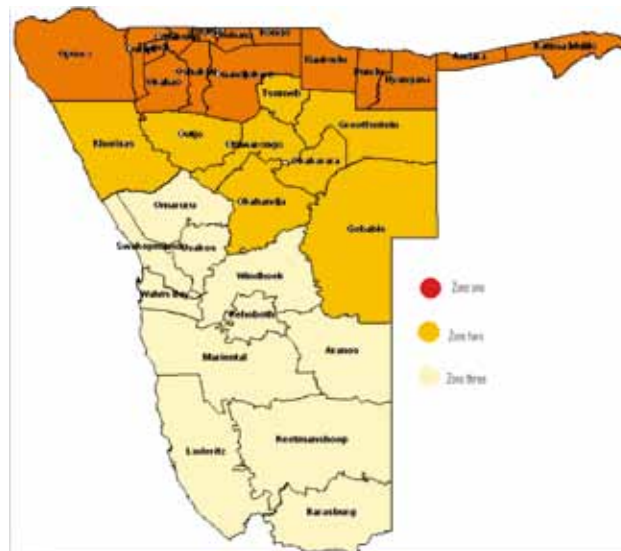
In order to apply evidence-based strategies that take into account varying levels of malaria transmission risk, data on the distributions of human population, malaria infection prevalence, case incidence data and remotely sensed climate data has been assembled to provide an evidence-base for transmission risk at the beginning of 2010. Figure 1 provides a map of malaria transmission risk in Namibia. However, an important limitation is the high uncertainty of predictions of the model in Omaheke and north western parts of Kunene regions; defining transmission risk is a dynamic process and the results of this initial risk assessment exercise should be continually updated and refined, especially in these parts of Omaheke and Kunene. (Previously, malaria stratification was based on the Mapping Malaria Risk in Africa (MARA) climate suitability model, which is limited as it estimates the likelihood of transmission based primarily on climatic variables).



**Figure 2: Combined evidence of malaria risk in Namibia, 2010**



**Figure 3: Malaria Incidence in Namibia, by Region, 2008**



**Figure 4: Stratification into Three Malaria Zones**

The above stratification represents a combination of incidence and other evidence of transmission risk into 3 distinct strata, for operational purposes.

**Table 2: Transmission Risk by District<sup>1</sup>**

Transmission Risk	Populations at risk c. 2010 (%)	Districts
Zone 1 Moderate Transmission Risk	55%	Nankundu, Rundu, Opuwo, Andara, Katima Oshakati, Kongo, Eenhana, Engela, Okahao, Nyangana, Outapi, Oshikuku, Tsandi, Onandjokwe,
Zone 2 Low Transmission Risk	15%	Gobabis, Outjo, Grootfontein, Okahandja, Tsumeb, Okakarara, Otjiwarongo
Zone 3 Malaria risk "free"	30%	Usakos, Omaruru, Swakopmund, Walvis Bay, Aranos, Mariental, Rehoboth, Luderitz, Oranjemund, Karasburg, Keetmanshoop, Windhoek

**Table 1: Transmission Risk by District<sup>2</sup>**

- 1 The estimates of transmission risk have a high level of uncertainty in parts of Omaheke and Kunene regions. Additional data collection and analysis is needed for these areas in order to clarify the understanding of risk for these regions. Some districts are represented in two zones, representing significant differences in transmission risk across the district.
- 2 The estimates of transmission risk have a high level of uncertainty in parts of Omaheke and Kunene regions. Additional data collection and analysis is needed for these areas in order to clarify the understanding of risk for these regions. Some districts are represented in two zones, representing significant differences in transmission risk across the district.

## PERFORMANCE OF THE MALARIA STRATEGIC PLAN (2003-2007)

The Roll Back Malaria Strategic Plan (2003–2007) set out a goal of reducing malaria morbidity and mortality to the point where it will no longer be a major public health problem. Specifically, the plan aimed to reduce malaria morbidity and mortality respectively by 35 percent by the year 2007 (as compared to the year 2000, See Annex 1); the strategy to attain this goal was centered around seven main service delivery areas; Annex 2 highlights the Strengths, Weaknesses, Opportunities, and Threats in light of the past experience and future efforts towards pre-elimination and elimination. The service delivery areas are:

- Malaria disease management
- Forecasting, early detection and control of malaria epidemics
- Malaria vector control (Indoor Residual Spraying (IRS), Insecticide Treated Nets (ITNs), larviciding)
- Malaria surveillance
- Operational Research
- Advocacy and Community Education
- Programme Management

According to data collected through the monthly Health and Management Information System (HMIS), there has been a sustained impact on malaria disease burden, demonstrated through the reduction in the incidence of malaria cases. In 2008, there were 128,531(62/1,000) reported outpatient malaria cases compared to 448,265 (238.2/1000) cases in 2000; 5,233 (0.9/1000) inpatient cases were reported in 2008, down from 29,521 (0.4/1000) inpatient cases in 2000. A total of 199 deaths were reported in 2008, compared to 679 in 2000 (HMIS data as of August 2010). Trends in outpatient, and inpatient cases, and deaths exhibit a decline of 71 percent, 82.3 percent, and 70.6 percent respectively between 2000 and 2008. However, these trends need to be interpreted carefully in the context of changes in reporting since the introduction of parasitological confirmation of cases in most health facilities, as well as incompleteness of the Health Information System (HMIS). Accurately measuring the extent of reductions in outpatient cases between 2000-2005 and the 2006-2009 figures is not possible due to the introduction of Rapid Diagnostic Tests (RDTs) in 2006, which excluded cases that would have previously been classified as malaria in the HMIS. However, a reduction of 62% was observed between 2006 and 2008 outpatient malaria cases.

# Situation Analysis

Implementation of malaria control efforts is organized according to five broad thematic areas.

## PROGRAMME AND OPERATIONS MANAGEMENT

The National Vector-borne Diseases Control Programme (NVDCP) was established in 1991 as part of the Primary Health Care (PHC) Directorate. After malaria was recognized as a priority disease within the MoHSS, it was expanded to incorporate a more comprehensive management structure. In 2004, the NVDCP was integrated into the newly established Directorate of Special Programmes (DSP) (alongside HIV/AIDS and TB control programmes) with the responsibility of formulating, directing and implementing malaria prevention and control measures. The goal of the NVDCP has so far been to prevent deaths and illnesses due to malaria and other vector-borne diseases, thereby reducing socio-economic losses through progressive improvement and strengthening of national, regional and district capabilities. The programme increased its capacity and effectively coordinated and scaled up interventions since 2003, leading to a decline in malaria cases and deaths by more than 50 percent, exceeding the Abuja and RBM targets. However, the current programme organizational structure does not reach household and community levels, a necessary prerequisite to sustain the momentum towards universal coverage and malaria elimination. Therefore, there is an urgent need to expand the NVDCP structure in order to address critical shortfalls in programme coordination and management (especially at regional, district, and community levels), and to ensure retention of professional and technical staff to support the sustainability of expanding malaria control operations.

At regional level, malaria service delivery is managed by the Environmental Health Unit and focal points for the DSP. At district level, currently the programme is managed by the PHC supervisors and Environmental Health Officers (responsible for vector control). At health centre and clinic level, nurses are providing malaria diagnosis and management services, as well as distribution of long lasting insecticide treated nets (LLIN) during routine ANC visits. Outreach services into the communities and households are carried out by a team from the district level. In some areas, non-governmental organizations have delivery structures at community level to reach a proportion of households with regular information, education and communication (IEC) and LLIN distribution; however, a national comprehensive community- malaria operation is not in place, except for Indoor Residual Spraying (IRS). It is proposed that malaria elimination community health workers be recruited in areas of moderate transmission risk and in malaria foci to support community-based active case detection, and utilization of LLINs, facilitating the move towards elimination.

The MoHSS provides the bulk of the financing for the national malaria control program through an integrated budget for DSP as well as through regional health teams (especially for IRS insecticides and operational costs). A comprehensive separate budget for malaria control at all levels (including LLINs, IRS, and Artemisinin-based Combination Therapy (ACT) funding) is has been proposed with the creation of a special malaria sub-vote within the DSP and in regional budgets.

A strong partnership is in place with the Ministry of Defense to provide personnel and logistical support for national malaria control activities including IRS and epidemic response. Strong partnerships also exist with SFH, DAPP and Anglican Diocese/Nets for Life, which provide support for both community IEC/behavior change communication (BCC) and community mobilization on LLIN usage. Technical and programmatic support is provided by WHO, UNICEF, and Southern Africa Malaria Elimination Support Team in all areas of malaria control.

Important strides have been made towards the establishment of a Trans-Kunene Malaria Initiative along the border with Angola in 2009. However a cross border initiative along the Caprivi and Kazungula border with Zambia, Botswana, Angola and Zimbabwe is lagging behind and effort should be made to revive it to facilitate joint cross-border operations for malaria control and elimination along border belt of 25 km malaria free zones on both sides of the borders. Due to strong program performance, and strong political support,

the country has been selected as one of only four countries in Southern Africa Development Community (SADC) which have the potential to transition towards the elimination of malaria. Namibia is also spearheading the malaria elimination campaign in the SADC region. As Namibia plans to embark upon a malaria elimination initiative, it is essential to strengthen and streamline the program's organizational structure for effective and efficient interventions towards malaria elimination.

## EARLY DIAGNOSIS AND CASE MANAGEMENT

The current National Malaria Policy includes brief guidelines on diagnosis and treatment; however, these need to be updated, due to the introduction of parasitological diagnosis of all cases. The current Malaria Policy also recommends Presumptive Prophylactic Treatment (PPT) during pregnancy with Sulphadoxine Pyrimethamine. However, this is no longer recommended due to the prevailing low levels of malaria transmission in the country. Although all district hospitals have access to laboratory diagnostic services, an estimated 50 percent of suspected malaria cases are treated based on clinical suspicion despite negative test result. There is no quality control system in place for RDTs. In some areas, this has contributed to health workers doubting the results of the RDT. Although training of health workers in case management and diagnosis is carried out every year, it has not managed to reach all health workers due to financial and human resource constraints. Most peripheral health facilities operate with only one health worker and are not able to attend trainings due to busy schedules. Moreover, there is lack of job aids, clinical algorithms and various posters that could be used to guide day-to-day practice. Although supervision of diagnosis and case management is conducted from the national level once a year, regions and districts are not regularly conducting supervision to adequately support health workers in the area of case management and diagnosis.

The limitation of access to diagnosis and treatment services at community level often results in the late presentation of malaria cases and continued pool of infection to sustain transmission. This is being addressed by outreach mobile services, although to a limited extent. The currently used first line antimalarial medicine, ART-LUM was introduced in 2005. However, the therapeutic efficacy of this medicine has not been determined to date due to insufficient sample sizes caused by low malaria incidence in the country. Malaria mortality is not being audited. There is no reporting and monitoring system on uncomplicated and severe malaria during pregnancy. There is also no monitoring system on abortions, preterm births, stillbirths and maternal mortality in pregnancy due to malaria.

According to the Malaria Indicator Survey, 12% of children reporting fever in the preceding two weeks had a finger/heel prick test for malaria; 20% took antimalarial medicines (60% of these took any medicine). Seventeen percent of children with fever took antimalarials on the same or next day of onset of fever; 6% took the nationally recommended first line ACT medicine, artemether-lumefantrine.

## VECTOR CONTROL

The primary vector for malaria in Namibia is *Anopheles arabiensis*. The previous primary malaria vectors - *Anopheles Funestus* s.s. and *Anopheles gambiae* s.s. - appear to have been eliminated. Vector studies conducted in 2001, 2002, and 2003 in eight malaria transmission areas have shown that *Anopheles arabiensis* has a wide variety of breeding sites and bites both indoors and outdoors. Studies carried out using WHO standard methods showed vectors are 100% susceptible to currently used insecticides.

Namibia combines IRS, LLINs and targeted larviciding for vector control. Indoor residual spraying using Dichloro-diphenyl-trichloroethane (DDT) 75% WP and deltamethrine 250 WG has been the primary vector control intervention since 1965. The annual spraying cycle falls between October and January. Annual IRS operational coverage remains above 80% since 2005, except in 2008 where the coverage dropped to 38% due to insecticide supplier's failure to deliver in time and the lack of buffer stocks. Bio-assay tests indicate quality of IRS delivery with adequate dosage of insecticide being deposited on sprayed surfaces. The program faces challenges of inadequate transport and needs to equip staff in basic entomology at regional level to conduct basic entomological studies.

LLINs were introduced in 2005 through the support of the Global Fund (GF) and other partners, targeting children and pregnant women through health facilities and outreach sites, antenatal services and complimented with mass distribution at designated sites such as villages, health centers and clinics. Between 2005 and 2009, the programme procured and distributed more than 500,000 LLINs to these target groups. This has also been supported by some non-governmental organizations such as SFH, DAPP, and the Anglican Nets for Life program in some regions. The program has not yet adopted a strategy to move towards universal coverage with one LLIN per two people in high transmission areas. The 2009, Malaria Indicator Survey (MIS) showed that LLINs usage among children under five years and pregnant women was 34.0% and 25.9%, respectively. Targeted winter larviciding during the dry season is conducted at vector breeding sites identified by entomological sampling in malaria endemic regions.

## **SURVEILLANCE & EPIDEMIC PREPAREDNESS AND RESPONSE**

There are currently two information systems which collect and report malaria data. The HMIS involves all public health facilities and collects malaria morbidity and mortality data on a monthly basis. This system is slow and incomplete, and does not provide information on laboratory confirmation status of reported malaria cases. A more comprehensive malaria weekly surveillance system was introduced in 2001 for early detection of epidemics. It collects data on suspected, tested and confirmed malaria cases, but reporting is so far restricted to the 9 endemic regions and data is reported only during malaria transmission season, i.e. from November to June. Currently, no standardized reporting forms are in use in the weekly surveillance system.

Strong malaria information and surveillance systems are recommended by the WHO to accurately estimate the burden of disease, to measure trends over time, to evaluate coverage and quality of interventions, to identify geographical and seasonal distribution of cases, and to detect epidemics in a timely manner. This becomes especially important when a programme re-orientation is envisaged from malaria control to pre-elimination and elimination. Programme reorientation requires a more specific malaria surveillance system to be able to detect all malaria cases, as well as asymptomatic infections. This implies that an active case based surveillance system has to be introduced in areas with low transmission and in malaria foci.

Historically, areas in northern Namibia have been subject to malaria epidemics (1990, 1996, 1997, 2000 2001, and 2004), causing high levels of morbidity and mortality. There have been no major malaria epidemics since 2005. Today, all malarious areas appear to have low transmission and are at high risk of epidemics. There is no focal person for malaria epidemic preparedness and emergency response in the national programme. A malaria epidemic preparedness guideline is in place since 2005 although it is not widely distributed and used. There is no locally adapted malaria epidemic preparedness plan at all levels especially at the national and district levels.

Weekly malaria surveillance from all health facilities in endemic areas is maintained during the malaria transmission from November to June. Epidemic thresholds were developed in 2003 using a five year data set, but in many centers have not been updated annually. A record of epidemics over the years, timeliness of detection, the speed and type of response is not kept. It appears that major epidemics are picked up in time and responded within two weeks but the weekly surveillance is not being analyzed well to ensure minor outbreaks are detected and responded to in a timely manner. No emergency stocks are kept at any level for rapid epidemic response.

## **ADVOCACY, BEHAVIOR CHANGE COMMUNICATION, COMMUNITY MOBILIZATION**

Simple messages on the need to seek early treatment, sleep under ITNs, and accept indoor spraying have been disseminated through national advocacy days as well as by NGOs distributing ITNs at the community level. However, there is no focal person responsible for health promotion and communication at the NVDCP, and there has not been a any attempt to harmonize all malaria messages that are distributed by different partners through various mediums and channels. This has limited the coordination and constant supply of IEC materials around the country.

Community-based studies have also revealed a low risk perception among many communities, particularly outside of the malaria transmission season, or in areas of low transmission. This has resulted in a gap between LLIN ownership and use, as well as poor treatment-seeking behavior. Low risk perception and poor treatment seeking behavior limit the uptake and impact of important prevention and treatment interventions. Understanding and addressing the barriers to behavior change is a key strategy in the national effort to increase the uptake of the diagnostic, treatment, and prevention services that are being scaled up countrywide. A Communication and Advocacy Strategy was launched in 2010 and will guide BCC efforts by NVDCP and its partners in moving forward.

Some operational research has been conducted and there is some appreciation of the behavioral risk factors that threaten the effort to interrupt onward transmission of malaria. The main barriers are delay in treatment-seeking due to long distances, no free LLINs for populations other than pregnant women and under fives, inappropriate use of LLINs for fishing (poverty and unavailability of fishing nets), displacement during flooding, as well as sporadic and selective house spraying.

Although malaria is a priority public health problem in the country, high level advocacy has not been adequate to influence national and regional leadership to sustain and scale up malaria interventions towards elimination. Advocacy needs to be sufficiently appreciated as an element of the elimination strategy that will mobilize domestic (public and private) support, which is critical to the sustainability of malaria control and elimination.

## ELIMINATION POTENTIAL

In the past few years the NVDCP has made substantial progress in terms of service coverage and reduction of malaria cases and deaths in the country. The programme was able to sustain the IRS coverage above 80% since 2005 (except the drop in coverage to 38% due to problems associated with supply of DDT), distributed more than 500,000 LLINs to pregnant women and under five children, and rolled out RDT diagnosis and ART-LUM treatment throughout the country. The scale up of these interventions contributed to the reduction in malaria incidence and mortality rate by more than 50% as compared to the year 2000. Today, malaria epidemiology in the country is in transition, with transmission tending towards more localized distribution.

According to the Malaria Program Performance review - a comprehensive, independent evaluation conducted in July 2010 – the NVDCP has successfully introduced and rapidly scaled up all malaria control interventions since 2005, prioritizing high risk populations and districts. The program in the short term needs to move towards and sustain universal coverage in the districts supporting moderate transmission risk, and has potential to move towards elimination in districts of low transmission risk; the four southern regions which are almost risk free will need robust surveillance to detect and effectively manage imported cases. Although there has been a remarkable impact since 2005 with current low levels of transmission in many constituencies and villages, there are still dynamic local environmental and ecological factors with frequent internal movement of people within Namibia across a transmission gradient between the south and the north, necessitating continued investigation, vigilance and preparedness for rapid response to malaria outbreaks. The review concluded that with some reorientation and changes in policies, strategies, and program reorganization, and with increased intensity of service delivery, it is feasible for the program to move towards pre-elimination by 2016 and towards a vision of malaria free Namibia by 2020.

In light of the progress made and confirmed by these and other evaluations, Namibia has adopted the goal of malaria elimination by 2020. Malaria elimination is defined by the WHO as the interruption of local, mosquito-borne malaria transmission within a defined geographical area, i.e. Namibia aims to achieve zero cases of locally transmitted malaria, recognizing that imported cases may (and very likely will) continue to occur..

Malaria elimination draws its mandate from and is aligned within several broader frameworks for development – nationally, regionally, and globally. The Namibia Third National Development Plan 2006/2007 – 2011/2012 acknowledges that malaria (as well as HIV/AIDS and TB) remains a major problem, especially in the north where it is endemic and aims to upgrade the health information system as well as total quality management through training of health professionals. Namibia has also committed to the Millennium Development

Goals (MDGs); malaria falls within this framework of the MDGs, where the goal is to “halt and begin to reverse the incidence of malaria and other major diseases”.. On a regional level, the SADC Malaria Elimination Strategic Framework was approved by the SADC Ministers of Health, recommending that four countries - Botswana, Namibia, South Africa, and Swaziland - take immediate steps to achieve elimination.

## REORIENTATION FROM CONTROL TO ELIMINATION

The approaches undertaken by a control programme and by an elimination programme will vary significantly. Namibia will undergo a programme reorientation to gear up for elimination. Previously, the objective of national control efforts was to reduce the burden (morbidity and mortality) of malaria, whereas the new focus will be the consolidation of control efforts and elimination of transmission foci. During elimination, systems must then be strengthened to (i) identify and treat all symptomatic cases, while also clearing malaria parasites from asymptomatic carriers, and (ii) significantly reduce human-mosquito contact. These two shifts will be facilitated by the implementation of active surveillance and targeted interventions as outlined in this Strategic Plan.

In summary, the shift in Namibia’s strategy from a control programme, to an elimination one, will involve the following broad changes. The table 3 below summarizes the broad changes to the strategy which are in line with the pre-elimination goal. The shifts are proposed to introduce major changes in the approach to malaria programming through more context-appropriate, focused interventions rather than blanket application of interventions. Namibia will progress towards elimination through a phased approach where; some districts will begin to interrupt transmission by targeting identified foci and are expected to attain zero transmission before 2016, while others will begin with consolidation of control, before entering the pre-elimination phase.

**Table 3: Strategic Shifts between Namibia’s Control and Pre-Elimination Phases**

Objective/ Intervention	Control Programme	Pre-Elimination Programme
Objective	Reduction of burden in morbidity and mortality. Acceptable to minimize reduction in transmission to the level where malaria is not a public health problem	Shrinking the map of malaria transmission. Reduction of parasite reservoir and transmission to a point where transmission occurs in localized foci, enabling a targeted elimination programme aimed at foci
Diagnosis	Most suspected cases confirmed by parasitological diagnosis (RDT or microscopy); no quality assurance of RDTs	All fever cases tested by RDTs and/or microscopy. High level of quality assurance for diagnosis.
Treatment	Some treatment based on clinical symptoms, despite negative test result	Treatment administered strictly according to laboratory (RDT/microscopy) results.
Vector Control	Focus on reducing vector survival and vector density. Selective IRS and LLIN distribution	Focus on reducing vector survival, and reducing vector-human contact. Combined IRS and LLIN to interrupt transmission in some areas; targeted vector control in some areas to eliminate transmission foci
Case – Finding (Surveillance)	Passive system of surveillance based on people presenting at health facilities	Major intervention, uses active case detection to trace <b>infections</b> in the community (symptomatic & asymptomatic)
Reporting (Surveillance)	Reporting to HIS/NVDCP by health care workers on a weekly/monthly basis; some (but not widespread) computerized reporting.	Case-based 24 hour notification and investigation, mapping of all positive cases and infections. Use of malaria registers. Disaggregation of local and imported cases.  Use of innovative technology to facilitate timely, complete data. Data quality control along reporting chains.



Objective/ Intervention	Control Programme	Pre-Elimination Programme
Imported Cases	Travelers and migrants, cross-border control are a low priority	Priority focus on travelers and migrants between malaria-free areas and transmission areas. Cross-border control maximizes efficiency of operations on both sides of common border, limiting transmission and risk of importation in border districts
Programme Management	Limited management staff, largely centralized at national level, limited M&E capacity, little inter-sectoral collaboration	Program must be fully efficient and act speedily. Capacity building for decentralized management of regions to plan, execute and monitor activities, meaningful partnership and involvement of other sectors
Private Sector	Little interaction with and reporting from private sector, despite being significant provider of health care	Private facilities required to report suspected and positive cases, integrated into surveillance system
Integration into Health System	Integration of reporting, human resources, and service delivery within the Directorate of Special Programmes, MoHSS.	Parallel reporting and service delivery (e.g. dedicated malaria surveillance, community health workers) at regional, district and community levels for period of elimination.

# Strategic Plan 2010 - 2016

## VISION

Namibia free of Malaria by 2020

## MISSION

The mission of the programme is to provide free, efficient, accessible, and quality malaria interventions to all people in Namibia.

## GOAL

The main goal of this strategic plan is to reduce the incidence of malaria to below 1 per 1,000 population in every district of Namibia by 2016

## OBJECTIVES

To achieve this goal, five objectives have been identified as follows:

- i. To develop and sustain the required programme management capacity and structures at all levels to effectively and efficiently deliver a combination of targeted interventions by 2012;
- ii. To achieve 100% parasitological diagnosis of all fever cases and 100% effective treatment of all confirmed cases according to the national guidelines by 2013;
- iii. To identify and map malaria foci for effective targeting of interventions, by strengthening a passive weekly surveillance system (Zones 1 and 2), and creating an active surveillance system (Zone 3) by 2012;
- iv. To achieve at least 95% coverage with a combination of vector control interventions in all malaria endemic areas and identified transmission foci by 2013;
- v. By 2013, at least 95% of the population will use at least one malaria preventive measure, and 95% of those with fever seek care within 24 hours of onset of symptoms.

## STRATEGIC INTERVENTIONS

### I. PROGRAMME AND OPERATIONS MANAGEMENT

#### ***Objective 1:***

***To develop and sustain the required programme management capacity and structures at all levels to effectively and efficiently deliver a combination of targeted interventions by 2012***

Rapid expansion of programme management capacity through the NVDCP establishment is necessary in order to efficiently coordinate rapid surveillance with mapping and to target delivery of a combination of high quality malaria control interventions at community level. The NVDCP will work with the MoHSS management to put in place (for the first time), malaria elimination officers at regional, district,

and community levels who will be dedicated to coordinate a targeted, effective delivery of malaria interventions among malaria foci and to rapidly contain outbreaks. To improve coordination among all partners, it is important to establish a national malaria elimination task force to provide policy oversight, supported by technical sub-committees to provide expert guidance for elimination activities.

The program needs to secure additional national financial resources to support universal coverage of malaria interventions, as well as support joint cross-border initiatives. The NVDCP will lobby for a specific sub-vote dedicated to malaria control within the annual budget of the MoHSS/DSP, facilitating robust planning and tracking of expenditures for malaria elimination. Additional resources will be mobilized from development partners, as well as the public and private sectors, towards the goal of securing at least 75 percent of the malaria elimination budget from domestic sources; this is crucial to the sustainability of the elimination effort.

Collaboration with neighboring countries will be scaled up through cross-border initiatives, specifically aiming to rapidly implement the Trans-Kunene Malaria Initiative (TKMI) and to develop the Trans-Caprivi-Kazungula Initiative in the north-east of the country. The Malaria Strategic Plan (2010-2016), Monitoring and Evaluation M&E Plan, and updated Malaria Policy will support the transition to pre-elimination and towards a malaria free Namibia by 2020.

### **Key Interventions**

- a) Expansion of NVDCP, regional and district staff establishment, adding malaria elimination officers and community-level cadre to support the malaria activities towards achieving elimination goal without compromise in timing and quality of services and interventions.
- b) Increased diversification and intensification of activities through joint quarterly and annual review as well as planning meeting with regions and districts
- c) Cohesion in policy and training of health workers through collaboration with other divisions in the MoHSS including Family Health, Integrated Management of Childhood Illnesses (IMCI) and Safe Motherhood), Epidemiology
- d) Provision of expert guidance through national elimination task force and technical subcommittees; coordination of malaria cross border initiatives and scale up joint implementation
- e) Sustainability of elimination programme through resource mobilization to meet the gaps in coverage, focusing on domestic public and private sector support
- f) Development of strategic, monitoring and evaluation plans as well updated malaria policies and guidelines to guide the programme towards elimination
- g) Established procurement and supply management system that ensures timely procurement and delivery to point of service delivery

**Table 4: Strategy by Transmission Zone**

<b>Intervention</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
<b>District Program Management</b>	- District malaria elimination officers - Malaria elimination community health workers	-District malaria elimination officers - Malaria elimination community health workers	-Staff support integrated into Primary Health Care
<b>Regional Program Management</b>	- Regional malaria elimination officers - Regional malaria surveillance officers	-Regional malaria elimination officers - Regional malaria surveillance officers	-Staff support integrated into Primary Health Care

## II. DIAGNOSIS AND CASE MANAGEMENT

### Objective 2:

**To achieve 100% parasitological diagnosis of all fever cases and 100% effective treatment of all confirmed cases according to the national guidelines by 2013**

Artemether-Lumefantrine is the first line anti-malarial medicine for treatment of uncomplicated malaria except during pregnancy and early infancy where quinine is used as first line medication. Diagnosis is based on RDT testing at primary care level and microscopy testing at secondary and tertiary care levels. Some health workers continue to give treatment for suspected malaria cases (without confirmation) based on clinical grounds during peak transmission season. The resulting over diagnosis prevents accurate reporting and determination of disease trends, while the true cause of illness goes undiagnosed.

Currently, no diagnostic and treatment of services are available beyond health facility level. As malarious districts work towards driving down transmission, accurate and prompt diagnosis of all suspected cases will be central to the elimination effort – this will be achieved through passive case detection by testing all febrile cases that are seeking care at health facilities, as well as active detection of cases and infections in the communities, as a part of the active surveillance system.

Effective diagnosis will be ensured through deployment of quality assured diagnostics, training of health care workers in use of and adherence to national guidelines. Malaria testing services are free of charge in all facilities and outreach services will be expanded to reach all communities to ensure universal access.

There is no system in place to monitor the quality of RDTs. As the programme moves from control to elimination, it is imperative that 100% of all fever cases receive parasitological confirmation, and that all malaria confirmed cases are treated according to the revised malaria policy. There is a need to rapidly extend diagnosis and treatment services to community level to ensure the screening of households and detection of infections and prompt treatment in remote communities. The programme also needs to ensure high quality of all diagnostic tests (RDTs and microscopy) and medicines.

### **Key Interventions: Diagnosis and Case Management**

- a) Proper use of and adherence to testing results through intensive training (in-service, mentoring) of health care workers; improved case management at health facilities through intensified training; development and distribution of job aids and treatment algorithms
- b) Quality controlled and quality assured processes that include protocols for lot-testing of commodities; collaboration with NIP to serve as referral center for QA of microscopy and RDTs
- c) Continual annual pre-season in-service training, competence assessments, and adherence to testing and treatment supported by regional level Clinic Mentors
- d) Determination of proportion of parasite species in the country through operational research
- e) Expansion of coverage of diagnosis and treatment through recruitment and training of malaria community health workers, with specific guidelines on diagnosis and treatment for community services
- f) Introduction of primaquine for radical treatment to further reduce transmission risk
- g) Monitor quality of treatment service delivery through more frequent district supervision of all health facilities and community health workers
- h) Expert guidance and monitoring of coverage, quality and impact through advisory committee on malaria case management
- i) Guaranteed availability of RDTs and ACTs in all health facilities through development of quantification tools and monitoring of supply system
- j) Evaluation of therapeutic efficacy studies of ART-LUM through operational research
- k) Evaluation of causes of malaria deaths through comprehensive death audits of each malaria fatality in low transmission and free malaria areas

**Table 5: Strategy by Transmission Zone**

Intervention	Zone 1	Zone 2	Zone 3
<b>Diagnosis</b>	- 95% parasitological diagnosis of all fever cases	-100% parasitological diagnosis of all fever cases	-100% parasitological diagnosis of all fever cases
<b>Treatment</b>	- 100% of all confirmed cases will be treated with ACTs	-100% of all confirmed cases will receive radical treatment (ACT & primaquine)	-100% of all confirmed cases will receive radical treatment (ACT & primaquine)

### III. SURVEILLANCE, EPIDEMIC PREPAREDNESS AND RESPONSE (SEPR)

#### Objective 3:

*To identify and map malaria foci for effective targeting of interventions, by strengthening a passive weekly surveillance system (Zones 1 and 2), and creating an active surveillance system (Zone 3) by 2012*

During the transition to elimination, surveillance is no longer focused on data collection for the purposes of monitoring and evaluation alone; surveillance will become a key intervention in the identification/diagnosis of cases and infections to identify and map malaria foci for effective targeting of interventions and interruption of onwards transmission.

Initially, it is necessary to strengthen the existing passive weekly surveillance system for timely and complete reporting and feedback with follow-up action in order to identify and predict epidemics and to initiate an appropriate rapid field response.

The introduction of case-based reporting within 24 hours followed by case investigation (the follow up on cases within 5 days to classify and identify origin), allows the identification and mapping of malaria transmission foci. This will be immediately followed by screening and active detection of cases within a 2km radius of the identified index case, with entomological surveillance and control. Active case-based searches will prevent onward transmission. A reactive system of case based searches will be used in Zones 2 and 3. Individuals are screened and infections may be found among residents of the 2km radius who may have been asymptomatic; these are treated, reducing the transmission reservoir and thus preventing ongoing transmission.

In order to accurately estimate the burden of disease, to measure trends over time, and to identify geographical and seasonal distribution of cases, a strong surveillance system will be a central pillar in the elimination strategy. The ultimate goal for the malaria surveillance system is therefore to rapidly detect, investigate, and respond to every infection of malaria. Towards this end, an additional active case-based surveillance system will be introduced in areas with low transmission where it is feasible to investigate every identified case. Above and beyond the passive surveillance system, active surveillance aims to investigate and follow up on cases presenting at the health facility, using this original or index case to identify additional symptomatic and asymptomatic "infections" of malaria and to map emerging foci of transmission.

#### Key Interventions: Surveillance

- a) Additional surveillance staff capacity to oversee data collection, quality control, submission, evaluation, case investigation
  - Surveillance / M&E Officer at national level
  - Data manager at national level
  - Nine surveillance officers at regional levels
  - Malaria elimination community health workers
- b) Standardized case definitions - fever/uncomplicated/severe
- c) Standardized tools for data collection, reporting, monitoring, analysis and feedback, case investigation across all districts and regions

- d) Timely and consistent use of data at all levels (not just national) for trend analysis; feedback loop to provide regular feedback to lower levels ( Quarterly Bulletin)
- e) Comprehensive, ongoing support and evaluation through supervisory visits, with new guidelines, training materials, and supervisory checklists for both surveillance and EPR
- f) Integrated training on Surveillance, and Epidemic Preparedness and Response (EPR) Geographic information system (GIS) and M&E at regional and district level on a regular basis for all core surveillance and peripheral staff
- g) Reporting of all cases detected in private health systems by mandating private providers to report in surveillance system
- h) Increased capacity to track infections and test fevers in remote communities through introduction and expansion of community health workers in surveillance activities
- i) Accurate mapping and identification of malaria foci and analysis of trends in transmission – temporal and spatial – through timely, complete reporting of **passively detected** cases through weekly surveillance system
- Weekly surveillance system in all regions and throughout the year
  - Disaggregation in reporting of indigenous and imported cases, particularly in border districts, and in Zones 2 and 3
  - Mapping of transmission to identify and target foci using GIS software; annual stratification by constituency
  - Enhanced communication tools and infrastructure for timely reporting at facility level (test reporting via short message services (SMS))
- j) Interruption of onward transmission through **active case based** in Zones 2 and 3
- Case-based reporting and case investigation of each confirmed malaria case within 5 days of notification followed by case classification
  - Active case search with parasite screening within a pre-defined radius (~2km) around each confirmed malaria case (locally acquired confirmed cases only in areas classified as “no local transmission”) followed by treatment of confirmed cases, combined with entomological surveillance and targeted vector control
  - Spot mapping of imported and locally acquired confirmed malaria cases in health facility catchment areas to identify malaria foci for targeted interventions (in areas with low transmission)
  - Malaria case registers at health facilities outpatient (OPD and Inpatient (IPD), in laboratories, and at national level
- k) Dedicated staff capacity to coordinate and mount speedy responses to outbreaks through Malaria EPR officer at NVDCP
- l) Revision of the Malaria Epidemic Preparedness and Response Guidelines from 2005 taking into account the changed epidemiological situation; epidemic preparedness and response activities costed and emergency fund in place
- m) Outbreak detection strengthened through implementation of weekly surveillance system throughout the year, in all regions, and annual updating of thresholds used for the detection of epidemics; this includes a new definition of an outbreak adapted to the new epidemiological situation and to pre-elimination/elimination targets
- n) Forecasting of disease trends and potential epidemics through correlation of malaria data with meteorological data for the past decades to identify association

**Table 6: Strategy by Transmission Zone**

Intervention	Zone 1	Zone 2	Zone 3
Surveillance	Weekly surveillance (passive)	Weekly surveillance (passive) + Case based surveillance (active)  Case investigation of each confirmed malaria case followed by case classification  Active case search around each confirmed malaria case followed by case management and vector control activities if needed	Weekly surveillance (passive) + Case based surveillance (active)  Case investigation of each confirmed malaria case followed by case classification  Active case search around each confirmed indigenous malaria case followed by case management and vector control activities if needed

Intervention	Zone 1	Zone 2	Zone 3
Epidemic Preparedness & Response	Thresholds using the mean and the third quartile of reported cases in the same week in preceding years used to calculate alert and epidemic thresholds respectively	A cluster of 3 or more lab confirmed cases used as threshold	Every confirmed case classified as locally acquired constitutes an outbreak and must be thoroughly investigated and responded to with adequate control activities

#### IV. INTEGRATED VECTOR CONTROL

##### Objective 4:

**To achieve at least 95% coverage with a combination of vector control interventions in all malaria endemic areas and identified transmission foci by 2013**

Although the elimination of the parasite, not the vector, is the ultimate goal of malaria elimination, integrated vector control is a key strategy towards driving down transmission to the point where elimination becomes feasible. In Zone 1, universal coverage with a combination of IRS and LLINs, as well as selective winter larviciding will be used to effect widespread reductions in transmission. In Zone 2, IRS and larviciding will be targeted at malaria foci. IRS and larviciding will also be applied to prevent and contain any malaria outbreak/transmission that may occur in Zones 2 and 3.

The scale up to universal coverage will have significant implications on human resources and logistics. Additional staff will be recruited at national, regional, district and community levels to ensure the delivery of high quality coverage with vector control interventions. The required personnel include entomologists, Environmental Health Officers, spray personnel and community health workers.

Monitoring and supervision is essential in order to ensure high quality delivery of interventions. Hence, frequent supervisory support visits will be carried out during the implementation of all vector control interventions. This will be supported by operational studies such as bio-assay and susceptibility studies to monitor the quality of IRS and resistance of vectors to commonly used insecticides.

##### Key Interventions

- a) Effective operations and maximum impact through use of geographical reconnaissance and stratification to map and target annual indoor spraying campaigns and achieve maximum coverage and impact
- b) Leverage expert guidance through establishment of technical committee on vector control
- c) Enhanced efficiency through further decentralization of execution of IRS; establish regional entomology teams to coordinate regional annual IRS
- d) Significant additional capacity for scaled up vector control interventions through recruitment of additional permanent and temporary personnel; training of personnel (geographic reconnaissance, vector control interventions)
- e) Interrupt transmission through additional protection and sustained universal coverage with LLINs in Zone 1 (moderate transmission)
- f) Geo-spatial analysis of LLIN distribution through reporting and mapping of LLIN coverage
- g) Universal coverage and consistent use of LLINs in target areas through regular household follow-up to support hang up and utilization; frequent behavior change communication
- h) Annual mapping and targeting of larviciding of vector breeding sites
- i) Supervision and monitoring of all vector control activities to ensure effective scale up and quality
- j) Regular bio-assay tests and vector susceptibility studies to monitor quality and efficacy of spraying

**Table 7: Vector control coverage by zone**

Intervention	Zone 1	Zone 2	Zone 3
IRS	- 95% universal coverage	100% IRS coverage in identified foci	- None, unless indicated by entomological surveillance
LLINs	- 85% of people in targeted communities sleep under LLINs	100% targeted LLIN coverage in identified foci	For travelers to Zone 1, and for personal protection against mosquito bite
Larviciding	- 95% coverage of identified breeding sites	- 95% coverage of identified breeding sites	- None, unless indicated by entomological surveillance

## V. ADVOCACY, BEHAVIOUR CHANGE COMMUNICATION, AND COMMUNITY MOBILIZATION

### Objective 5:

**By 2013, at least 95% of the population will use at least one malaria preventive measure, and 95% of those with fever seek care within 24 hours of onset of symptoms**

All messages on malaria will be harmonized and disseminated under the national “Wipe Out Malaria” brand to ensure a unified approach to behavior change messaging and to increase community recognition of this campaign as trustworthy source of information. The key messages and channels will be developed centrally according to the Malaria Advocacy and Communications Strategy, with input from a technical committee of partners in health promotion, behavior change, and public relations. The campaign brand will be promoted by respected leaders, who will foster in the community, a sense of personal responsibility for adhering to personal protection and early treatment seeking. The NVDCP, Malaria Ambassadors, and other partners will engage and develop partnerships with high-profile companies, business leaders, and members of Cabinet to secure tangible commitments for malaria elimination. Commitments – in the form of financial resources, or technical and operational capacity or expertise – will be mobilized to expand malaria interventions (e.g. airtime for sms reporting, transport and logistics, computer software and GIS expertise). Existing networks of community health workers (for HIV, TB) will be trained to incorporate malaria messages in their home visits; additional community health workers will also be used to rapidly expand coverage to all areas of the country, particularly typically remote and inaccessible areas. This intervention is the key transformative intervention, aiming to continually reach households to ensure use of preventive services, testing for fever, and to support case investigation. Districts will develop annual quantification and plans, incorporating transport and logistics capacity from Ministry of Defense, to reach all areas.

Biennial KABP studies (households/community level) will be conducted to continually assess changes in perceptions towards malaria, and to evaluate the impact of messaging and community mobilization. BCC messages will be adapted in response to the evidence generated.

### Key Interventions:

- a) Harmonize behavior change messages and efforts of all partners by rolling out a nationally identifiable communication campaign under the Wipe Out Malaria brand.
- b) Expand and accelerate access to remote communities with behavior change communication and community mobilization activities through use and expansion of existing networks of community health workers to reach remote populations with messages on malaria on average once every month (see strategy by transmission zone)
- c) Annual pre-season malaria BCC campaigns to reinforce messages and reinforce and encourage higher utilization of key malaria interventions during peak malaria season
- d) Continually adjust and improve BCC strategies by conducting studies to assess community perceptions and practices
- e) Leverage the resources and capacity of the private sector by forming public-private partnerships to secure financial, technical, and operational support for malaria elimination



- f) Mobilize communities to appreciate personal protection measures and improve treatment-seeking behavior through use of community leaders/gatekeepers (councilors, religious leaders, herdmen, teachers)

**Table 8: Advocacy Community mobilization by zone**

<b>Intervention</b>	<b>Zone 1</b>	<b>Zone 2</b>	<b>Zone 3</b>
<b>Advocacy</b>	<ul style="list-style-type: none"> <li>- Malaria Elimination Awareness Days and Ambassadors/community leaders focus on Zone 1, 2</li> <li>- Media sensitization priority (inc. Windhoek)</li> </ul>	<ul style="list-style-type: none"> <li>- Malaria Elimination Awareness Days and Ambassadors/community leaders focus on Zone 1, 2</li> </ul>	
<b>Community Mobilization</b>	<ul style="list-style-type: none"> <li>- Visit h/holds at least every 2 weeks</li> <li>- CHWs focus on BCC</li> </ul>	<ul style="list-style-type: none"> <li>- Visit h/holds at least every 2 weeks during season (otherwise once a month)</li> <li>- Use CHWs to follow up and trace cases (surveillance)</li> </ul>	<ul style="list-style-type: none"> <li>- No regularly scheduled household visits</li> <li>- Use Environmental Health Officers (EHOs)/ Environmental Health Assistants (EHAs) to follow up and trace cases (surveillance)</li> </ul>
<b>Behaviour Change Communication</b>	<ul style="list-style-type: none"> <li>- IEC to focus on seeking testing for fever, acceptance of IRS, use of LLINs</li> </ul>	<ul style="list-style-type: none"> <li>- IEC to focus on seeking testing for fever, acceptance of IRS, use of LLINs</li> </ul>	<ul style="list-style-type: none"> <li>- IEC to focus on signs and symptoms, using ITNs, prophylaxis</li> </ul>

# Monitoring and Evaluation

A detailed plan for monitoring and evaluation progress towards the objectives laid out in the Strategic Plan will be detailed in an accompanying Monitoring and Evaluation Plan. A high level performance framework is summarized below.

Table 9: High-Level Framework for Monitoring & Evaluating Progress towards the Strategic Goal

Indicator/Targets	Baseline (Year)	2011	2012	2013	2014	2015	2016	Source	Frequency
<b>GOAL: To reduce the incidence of malaria to less than 1 case per 1,000 population in each district</b>									
Incidence of malaria (confirmed cases per 1,000)	57 (2008)	40	30	10	7	5	1	MWS/HIS	Annually
Number of malaria-free districts (zero indigenous cases)	12 (2009)	12	16	20	24	28	34	MWS/HIS	Annually
Number of malaria deaths	199 (2008)	100	85	75	60	40	35	MWS/HIS	Annually
Number of confirmed malaria cases	128,531* (2008)	87,300	66,770	34,000	16,200	7,065	2,400	MWS/HIS	Annually
<b>OBJECTIVE: To develop and sustain the required capacity in all intervention areas at all levels by 2012</b>									
% of NVDCP positions filled (of the staff establishment)	57% (2010)	85%	100%	100%	100%	100%	100%	NVDCP Annual Rpt.	Annually
% of budget funded from domestic resources	35% (2009)	40%	50%	60%	75%	75%	75%	DSP Financial Rpt.	Annually
% regions/districts with malaria focal points	0% (2010)	25%	50%	50%	100%	100%	100%	NVDCP Annual Rpt.	Annually
<b>OBJECTIVE: To achieve 100% parasitological diagnosis of all fever cases and 100% effective treatment of all confirmed cases according to the national guidelines by 2013</b>									
Proportion of health facilities participating in QA programme	0 (2009)	50%	70%	80%	90%	100%	100%	Quality Audit Rpt	Quarterly
Proportion of fever cases tested by RDTs/Microscopy	50% (2009)	70%	80%	90%	95%	95%	95%	MWS	Quarterly

Proportion of malaria confirmed cases treated according to national guidelines	N/A	90%	100%	100%	100%	100%	100%	100%	Supervision Rpt.	Bi-annual
Proportion of people with fever seeking treatment within 24 hours of onset of symptoms	17% (2009)			90%	100%				DHS/MIS	2012, 2014
Proportion of health facilities with no stock outs of RDTs and ACTs in the last three months	99% (2009)	100%	100%	100%	100%	100%	100%	100%	Supervision Rpt.	Bi-annual
<b>OBJECTIVE: To have a functional, passive weekly surveillance system in all districts, and active case based surveillance in all districts with low and no transmission by 2012</b>										
# of districts reporting weekly surveillance data throughout the year	2 (2010)	23	34	34	34	34	34	34	MWS	Qtrly.
Proportion of districts in low or no transmission areas conducting active case-based surveillance	0	11	11	20	24	28	34	34	NVDCP Qtr Rpt.	Qtrly.
% of Epidemics detected and contained within two weeks of onset.	N/A	80 %	90 %	100 %	100 %	100 %	100 %	100 %	MWS	Qtrly.
Proportion of confirmed malaria cases reported through case based surveillance that are fully investigated and classified within one week	N/A	50 %	70 %	80 %	85 %	90 %	95 %	95 %	NVDCP Qtr Rpt.	Qtrly.
Proportion of confirmed malaria cases reported through case based surveillance that are followed by active case search (low transmission)	N/A	50 %	60 %	80 %	90 %	95 %	100 %	100 %	NVDCP Qtr Rpt.	Qtrly.
<b>OBJECTIVE: To achieve at least 95% coverage with vector control interventions in all malaria endemic areas and identified transmission foci by 2013</b>										
Proportion of the population in moderate transmission areas (Zone 1) protected by IRS	50% (2009)	75%	85%	90%	95%	95%	95%	95%	NVDCP Rpt.	Annually
Proportion of targeted areas covered with IRS	90% (2009)	80%**	85%	90%	96%	95%	95%	95%	NVDCP Rpt.	Annually
% of people in targeted communities sleeping under LLINs	22% (2009)		40%		60%				MIS/DHS	2012, 2014
% of mapped breeding sites treated with larvicides	50%	60%	70%	75%	80%	90%	100%	100%	NVDCP Rpt.	Annually
<b>OBJECTIVE :By 2013, at least 95% of the population will use at least one malaria preventive measure, and 95% of those with fever seek care within 24 hours of onset of symptoms</b>										
% households in endemic regions reached at least once a month by community health workers	0%	50%	60%	70%	70%	75%	75%	75%	NVDCP Qtr. Rpt	Qtrly.
% people using at least one prevention measure	78%		80%		90%		95%	95%	MIS/DHS/KABP	Bi-ennial
% of people who can cite fever and one other symptom of malaria	37%		80%		90%		95%	95%	MIS/DHS/KABP	Bi-ennial

\*Estimated that 50 – 60% of these are confirmed, and the rest are clinically diagnosed

# Budget

The following table summarizes the costed budget of this Strategic Plan, to be met by the GRN, together with development partners, and other local and international stakeholders.

**Table 4: Budget by Objective and Service Delivery Area (US\$)**

Service delivery area	2010	2011	2012	2013	2014	2015	2016	Total
<b>Objective 1 - Programme &amp; Operations Management</b>	328,802	3,047,879	3,867,318	4,281,245	4,236,901	4,491,115	4,719,300	24,972,562
1.1 - Build Human Resource Capacity	140,052	908,140	1,598,141	1,840,746	1,625,708	1,723,251	1,769,405	9,605,444
1.2 – Strategic Partnerships for Malaria Elimination	-	74,369	66,191	83,561	74,372	78,834	99,522	476,849
1.3 – Cross-border Collaborations	188,750	2,065,370	2,202,986	2,356,939	2,536,821	2,689,030	2,850,372	14,890,269
<b>Objective 2 – Case Management</b>	283,784	1,519,904	1,835,819	2,317,256	2,231,858	2,438,605	2,081,404	12,708,631
2.1 – Diagnosis	191,288	900,037	1,396,780	2,074,025	2,035,681	2,274,923	2,008,191	10,880,924
2.2 – Prompt, Effective Treatment	92,496	579,289	400,907	202,812	153,331	118,266	25,072	1,572,174
2.3 – Community-based Case Management	-	40,578	38,132	40,420	42,845	45,416	48,141	255,533
<b>Objective 3 – Surveillance &amp; EPR</b>	39,856	154,242	133,982	1,217,223	2,072,119	569,693	910,513	5,097,627
3.1 – Passive Surveillance	-	78,354	53,533	45,117	32,738	34,468	36,536	280,745
3.2- Active Case Surveillance	7,538	50,130	53,147	1,028,236	466,030	450,499	839,508	2,895,087
3.3 – Malaria Information Management	32,318	20,809	22,057	138,310	1,567,457	78,478	27,847	1,887,276
3.4 – Epidemic Preparedness & Response	-	4,949	5,246	5,561	5,894	6,248	6,623	34,520

Service delivery area	2010	2011	2012	2013	2014	2015	2016	Total
<b>Objective 4 – Vector Control</b>	3,744,371	5,189,766	7,132,530	6,507,449	6,743,698	7,365,053	6,241,966	42,924,834
4.1 – Vector Control: Indoor Residual Spraying (IRS)	2,652,244	3,966,046	5,629,978	5,756,367	5,189,142	5,745,584	6,046,694	34,986,054
4.2 – Vector Control: Long-Lasting Insecticide-Treated Nets (LLIN)	962,715	1,098,094	1,369,282	592,093	1,399,784	1,455,411	34,071	6,911,451
4.3 – Vector Control: Larviciding	107,500	113,950	120,787	128,034	135,716	143,859	152,349	902,196
4.4 – Insecticide Efficacy Monitoring	21,913	11,677	12,482	30,955	19,056	20,199	8,852	125,134
<b>Objective 5 – Advocacy, BCC, Community Mobilization</b>	97,153	436,270	828,831	840,202	1,310,017	1,345,143	1,897,491	6,755,106
5.1 – BCC: Mass Media, Community Outreach	90,131	403,386	591,196	809,080	1,043,011	1,310,173	1,597,483	5,844,460
5.2 – Advocacy	7,022	7,443	29,361	31,123	32,990	34,970	37,068	179,976
5.3 – BCC Operational Research	-	25,440	208,273	-	234,016	-	262,940	730,669
<b>Strengthening Monitoring &amp; Evaluation (additional to M&amp;E included in thematic areas)</b>	2,163	26,725	54,733	166,444	84,381	102,826	156,347	593,620
<b>TOTAL (US\$)</b>	4,496,129	10,374,786	13,853,213	15,329,821	16,678,974	16,312,434	16,007,022	93,052,380

# Management and Implementation

The political and financial support of the GRN, through the MoHSS, will be central to the ability of all implementing and technical partners to sustain the interventions and activities highlighted in this strategy. A National Malaria Elimination Task Force will be formed to serve as the main governing body and will provide policy direction and oversight with support from technical working groups to ensure the implementation of evidence-based, effective programs according to the National Malaria Strategy 2010 – 2016. The Elimination Taskforce – which report directly to the Permanent Secretary - will be made up of technical experts, and national leadership who will bring together their respective capacity, experience, and influence to mobilize the country around the goal of reducing incidence to less than 1 case per 1,000 population in every district.

The NVDCP (an independent program within the Directorate of Special Programmes) will be at the helm of driving the day-to-day coordination of the strategy and its activities, ensuring that all implementing partners have the financial, policy, human resource, and infrastructural capacity necessary to carry out their respective functions. The NVDCP team - based in Windhoek and Oshakati - has a primarily technical and management function — will be equipped with expertise in case management and parasitology, vector control and entomology, surveillance/epidemiology, as well as behaviour change. Malaria interventions will maintain and expand the decentralized model of primary health care service delivery, while the role of the NVDCP will be to develop the guiding policies and building capacity from regional to community level, from which malaria interventions will be implemented. As elimination programmes require a very detail-oriented and intensive approach, a decentralized programme will contribute towards a speedier, efficient delivery of the interventions. Over the course of this Strategic Plan, the NVDCP will focus on further building capacity at the district level, as well as introducing community-level management of malaria, through community health workers who will extend the reach of malaria prevention and treatment services.

A new staff establishment for the NVDCP is proposed to address critical shortfalls in programme management and technical capacity, particularly in light of the demands of an elimination programme. The proposed NVDCP structure is illustrated below; it highlights new proposed posts to bring expertise in epidemiology, surveillance, behavior change communication, as well as to enhance administration capacity for more efficient programme operations.

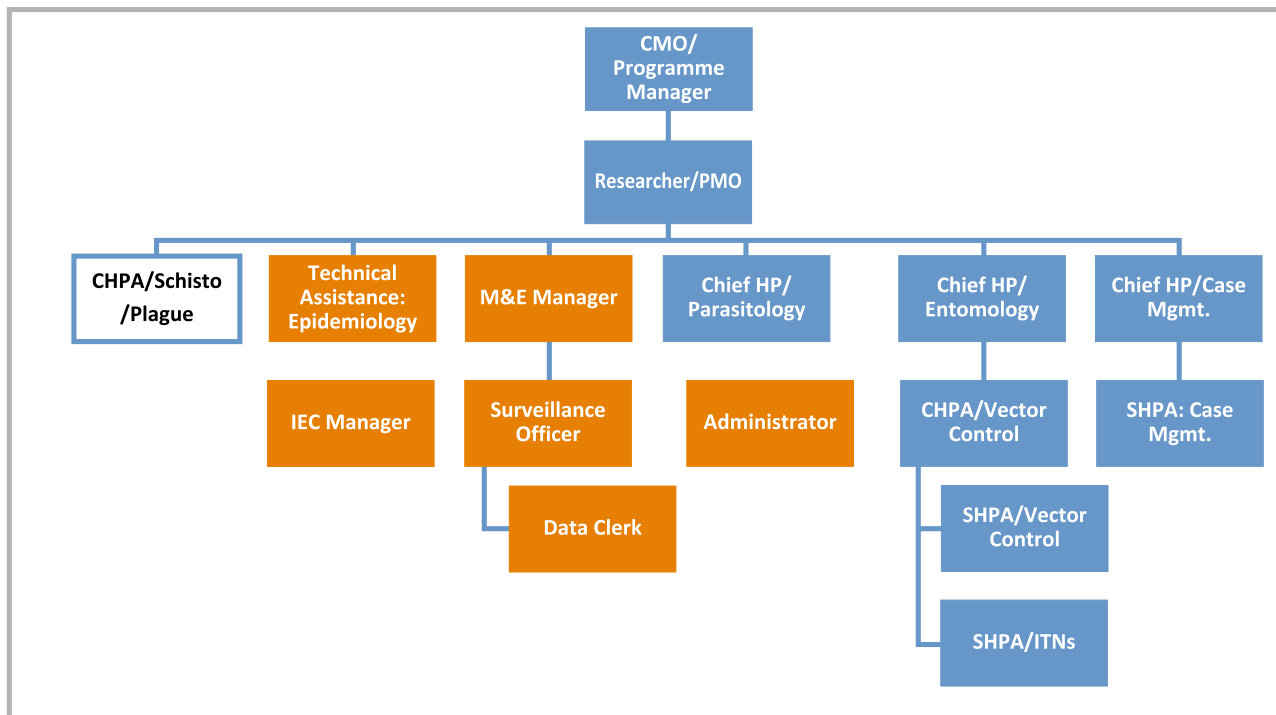
At the regional level, it is proposed that a Regional Malaria Elimination Coordinator be established to act as a focal point for all malaria activities and to ensure effective management of interventions. The Malaria Elimination focal point will work with existing staff (EHOs, DSP staff - included under the Primary Health Care System) to manage case management and vector control activities. A Regional Clinic Mentor will also be established to provide closer, continuous in-service support to the health facilities, ensuring adherence to the new guidelines on diagnosis and treatment. Regional Surveillance Officers will oversee strengthening of the passive and active surveillance systems, and conduct data quality control.

At district level, in addition to the EHOs conducting malaria activities (under PHC), a District Malaria Elimination Coordinator will coordinate service delivery and surveillance activities at, also providing support to the health facilities, and community health workers. It is also proposed that one EHO be dedicated full-time to malaria control at district level.

At the community level, monthly and quarterly outreach services will ensure the reach of malaria services to villages and homestead. Community health workers, with supervision from the District Malaria Elimination Coordinator, will focus on delivery of information and education, active community case investigations, support for LLIN hang up, as well as eventual provision of malaria diagnosis and treatment.

The University of Namibia, WHO, and SAMEST will continue to provide technical and programmatic support towards the reorientation from control towards elimination. In addition, implementing partners will extend the impact of the NVDCP's efforts by leveraging their various capacities in laboratory systems, quality assurance systems, research, procurement and supply management, and behavior change communication.

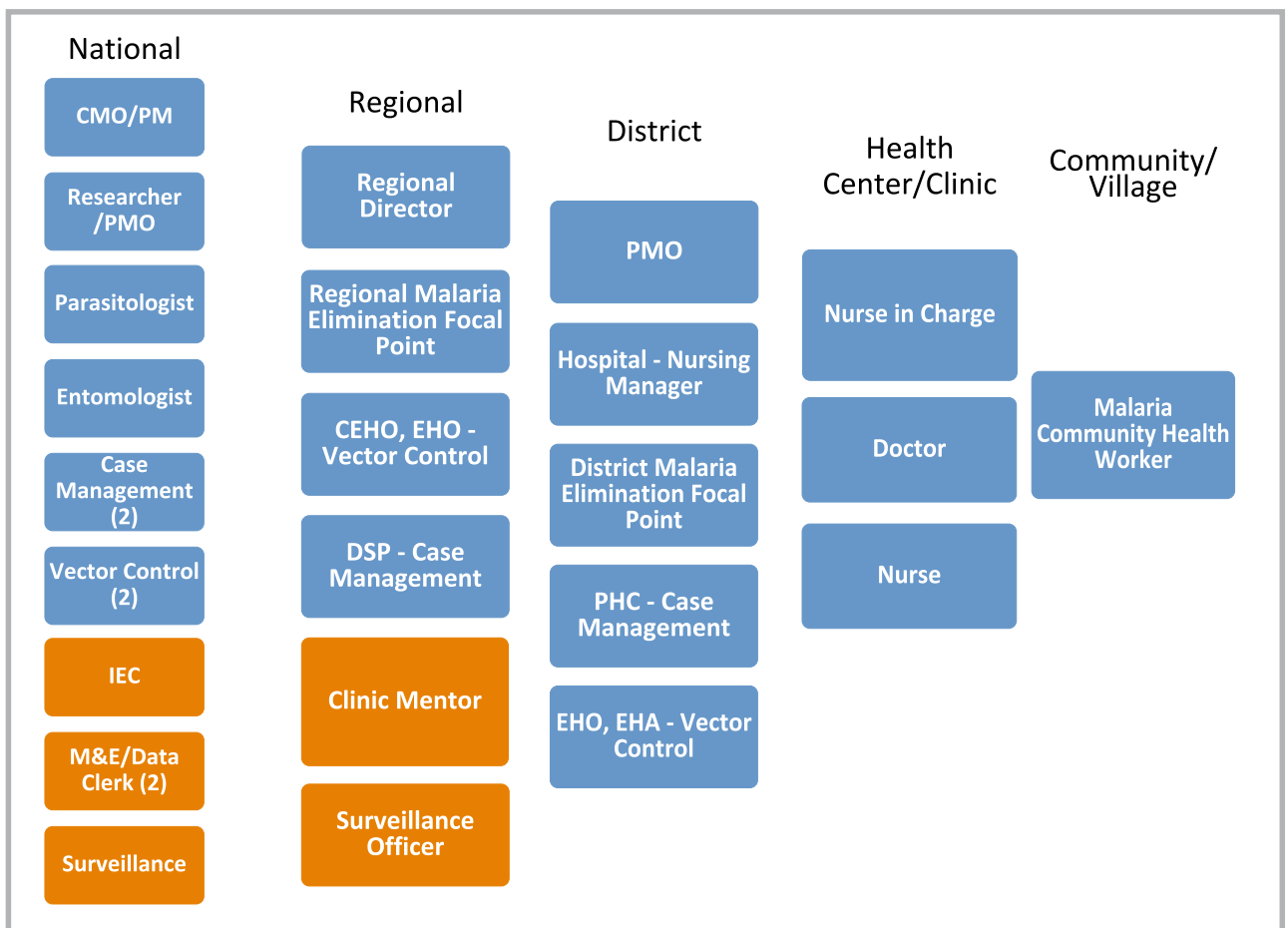
As Namibia transitions towards the malaria elimination phase, partnership with a variety of non-traditional partners from all sectors will be instrumental to community and national mobilization efforts. Efforts to sensitize partners will be given increasing importance, along with efforts to sensitize leaders in various sectors regarding Namibia’s elimination agenda. In order to maintain an efficient, streamlined operation at the national level, NVDCP will also consider sub-contracting/outsourcing those activities which are best managed outside the periphery of the public sector.



**Figure 4: Proposed Management Structure at National Level.**

*(The chart outlines current structure of NVDCP, with funding shared between MoHSS and donor partners. The goal is to eventually shift responsibilities so that all posts can be sustained by the MoHSS).*

- Donor-funded posts
- MoHSS posts



**Figure 5: Management of Malaria from National to Community Level**

*(The chart outlines current structure of NVDCP, with funding shared between MoHSS and donor partners. The goal is to eventually shift responsibilities so that all posts can be sustained by the MoHSS).*

- Donor-funded posts
- MoHSS posts



# Annexes

## ANNEX 1: PERFORMANCE OF THE RBM STRATEGIC PLAN 2003 – 2007

Thematic Area	Key Targets Set	Achievements
<b>Programme Management</b>	<p>10 staff trained in parasitology, entomology, epidemiology short courses</p> <p>4 staff trained in parasitology, entomology, epidemiology long courses</p> <p>Supervisory visits to all endemic regions every 6 months</p>	<p>Approx. 10 staff trained, mainly in entomology and basic epidemiology.</p> <p>5 trained in entomology (MSc), parasitology (MSc), public health (MPH + TropMed, MPH) (all currently retained by NVDCP)</p> <p>Case management: Succeeded in visiting each facility once in a year. Vector control conducted supervision once a year during spraying campaign</p>
<b>Case Management</b>	<p>80% of all malaria cases will be correctly diagnosed and treated according to the national malaria treatment guidelines</p> <p>At least 70% of malaria cases are treated within 24 hrs of onset of illness</p> <p>At least 70% of pregnant women will be sleeping under ITNs</p> <p>By 2006 60% of pregnant women will receive prophylaxis against malaria</p>	<p>An average of 51% of cases are confirmed by parasitological diagnosis (RDT/microscopy)</p> <p>17% receiving anti-malarials in 24 hrs (MIS, 2009)</p> <p>26% pregnant women sleeping under LLINs (MIS, 2009)</p> <p>5 % pregnant women took 2 doses of SP (MIS, 2009)</p>
<b>Surveillance, EPR</b>	<p>By 2005, 90% of the epidemic districts will be able to compile and analyze their data on weekly basis</p> <p>90 % of the health workers in peripheral health facilities will be trained on the use of epidemic monitoring tools and epidemic preparedness and control</p> <p>Map of stratification of malaria risk available</p>	<p>80% (health facilities) consistently report on a weekly basis throughout the malaria season; 34 regional and district staff trained in computerized data management</p> <p>180 health staff trained in 2005</p> <p>No new stratification conducted before 2007; stratification later developed in 2010</p>
<b>Vector Control</b>	<p>Geographical reconnaissance data will be available in all regions</p> <p>Coverage of at least 80% with IRS</p> <p>At least 70% of children less than five years, and 70% of pregnant women, will sleep under ITNs</p> <p>All malaria endemic regions will practice selective larviciding during the pre-peak transmission period.</p>	<p>No geographical reconnaissance conducted</p> <p>At least 85% IRS coverage maintained since 2006 (except 2008)</p> <p>34% children under 5 sleeping under LLIN; 26% pregnant women (MIS, 2009)</p> <p>All regions practice selective larviciding</p>
<b>IEC, Advocacy and Social Mobilization</b>	<p>By 2004, functional RBM partnerships will be established in all endemic regions</p> <p>RBM partners will be actively engaged in the planning, implementing and monitoring of malaria control activities at national and regional level</p>	<p>RBM partnerships have not been established/formalized in the regions</p> <p>Fewer than 50% RBM partners actively involved at national level</p> <p>Although no targets set in the Strategic Plan:</p> <ul style="list-style-type: none"> <li>- 3,944 radio messages aired</li> <li>- 98% households can name at least 2 signs and symptoms of malaria</li> </ul>

## ANNEX 2: SWOT ANALYSIS

### SWOT ANALYSIS: Programme Management

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Political support for malaria elimination Domestic budget support for human resources and commodities</li> <li>• Few, but dedicated and supportive partners</li> <li>• Comprehensive mapping of transmission risk to guide interventions and ensure cost-effectiveness</li> <li>• Communications &amp; Advocacy Strategy in place</li> <li>• External donor funding to support elimination (though still funding gaps)</li> <li>• Strong procurement and delivery system in place</li> <li>• Experience in malaria control and evidence of declining transmission and programme success over last 10 years</li> <li>• Advocacy Strategy guides efforts to mobilize national support for elimination</li> <li>• Strong health system with good coverage of health facilities and no user fees for malaria</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Decline in morbidity and mortality, paving the way for reorientation towards malaria elimination</li> <li>• Strong training institution (UNAM, National and Regional Health Training Centers (NHTC) and Polytechnic of Namibia ) can incorporate malaria guidelines into curriculum</li> <li>• Increased resources for malaria from GFATM</li> <li>• Established reporting and surveillance system</li> <li>• Restructuring of national and regional systems provides opportunity to review NVDCP structure the Prime Minister</li> <li>• Decentralized Health System and budget allows regions to coordinate own programs efficiently</li> </ul> <p>Well established NIP at national , regional and district levels</p>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Insufficient and no specific malaria budget sub vote allocated for the programme activities.</li> <li>• Lack of adequate human resources ( M&amp;E Officer, IEC Officer , Administrator and Surveillance Officer /Data manager and insectary manager at national level</li> <li>• No specific focal person for malaria at regional and district levels</li> <li>• Non existence M/E and strategic plans</li> <li>• No quality control for malaria commodities</li> <li>• Inadequate transport to effectively execute the malaria activities</li> <li>• Lack of transport capacity to reach all affected areas</li> <li>• Not enough experienced focal persons to oversee activities (esp. at regional level)</li> <li>• Weak coordination of partners and cross borders initiatives</li> <li>• No Community malaria health workers to spearhead malaria interventions at community level</li> </ul> <p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• High burden of HIV and TB lower malaria priority</li> <li>• Flooding and unpredictable climate change</li> <li>• Low availability of insecticide (DDT) within southern Africa region</li> </ul>
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## SWOT ANALYSIS: Surveillance, Epidemic Preparedness and Response

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Two surveillance systems in place: HIS and weekly surveillance</li> <li>• All public health facilities officially reporting sites</li> <li>• Training of 34 health workers in computerized data management</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Two parallel surveillance systems with their specific limitations: HIS and weekly surveillance <ul style="list-style-type: none"> <li>o Frequency of reporting: monthly vs weekly, throughout the year vs. during season</li> <li>o No info on laboratory confirmation of cases in HIS and only partly in weekly surveillance</li> <li>o Ownership of data: No direct access vs. direct access</li> <li>o Low completeness and timeliness in both systems</li> </ul> </li> <li>• Inconsistency of reporting in HIS system (some regions report clinically suspected malaria cases whereas others report laboratory confirmed cases only) which makes it very difficult to compare trends between regions and over time</li> <li>• Shortage of health staff trained in surveillance at all levels</li> <li>• Private health sector and local community insufficiently involved</li> <li>• No specific surveillance training in the past</li> <li>• No regular analysis and feedback to lower levels</li> <li>• No sufficient coverage with computers, software, and internet access at regional and especially at district level</li> <li>• No comprehensive malaria data base at NVDCP</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Data collected in many HFs but not reported</li> <li>• Shift to pre-elimination and elimination goals will support enhanced surveillance</li> <li>• Plans to strengthen weekly surveillance system and to introduce active surveillance</li> <li>• Funds will be available for additional health staff, training and additional equipment like computers, software, internet access, PDAs ...</li> <li>• Improved technical expertise at national level</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Health staff overburdened with other duties</li> <li>• High turnover of health staff at all levels</li> <li>• Value of sophisticated surveillance for programme success underestimated</li> <li>• Surveillance data used to guide future activities without critical analysis</li> <li>• HIS system difficult to change</li> <li>• Programme forced to further enhance parallel system</li> <li>• No costed supervision plan</li> </ul>

## SWOT ANALYSIS: Vector Control

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Government commitment to malaria vector control program and sustainability of IRS since 1965; government budget has been sufficient for IRS insecticide and some equipment</li> <li>• Well established and functioning vector control program at national, regional and district levels.</li> <li>• Vector control guidelines and training manuals in place.</li> <li>• All malaria endemic regions have well trained staff in malaria vector control, basic entomology &amp; malaria epidemiology</li> <li>• IRS quality and coverage improvement since 2005</li> <li>• All national level vector control posts currently filled</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• There is insufficient IRS fleet in the regions for supervision &amp; transporting spray operators</li> <li>• No geographical reconnaissance done in all endemic regions</li> <li>• Staff at regional and district levels to support scale up to universal coverage</li> <li>• Low coverage and use of ITNs in the general population in all regions</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Government commitment to support national malaria control program and vector control scale up</li> <li>• Collaboration and support from SADC Secretariat</li> <li>• Potential increase in vector control personnel at all levels through proposed increase in malaria specific personnel</li> <li>• Proposed new NVDCP structure &amp; staff establishment</li> <li>• Availability of donor funding to scale up vector control</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Natural disasters such as floods are risk factors for access with vector control interventions</li> <li>• Dependence on external funding affects the sustainability of achievements and scaled up ITN coverage</li> <li>• Staff turnover, especially among EHOs and EHAs</li> </ul>

## SWOT ANALYSIS: Case Management

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Policy and guidelines on malaria case management available</li> <li>• Availability of antimalarial medicines and RDTs in almost all health facilities and pharmacies</li> <li>• Training of health workers on case management</li> <li>• Good collaboration with NIP and the curatives teams in hospitals</li> <li>• Outreach services including malaria diagnosis and treatment in districts</li> <li>• Laboratory has internal and external quality control systems in place.</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Limited knowledge in the use of RDT by health workers</li> <li>• Treatment of RDT negatives and clinically diagnosed cases common practice; poor adherence to the national guidelines</li> <li>• Shortage of functioning diagnostic sets and weighing scales</li> <li>• Limited supervision from regional and district levels</li> <li>• Absence of advisory committee</li> <li>• Inadequate IEC on case management including job aids and clinical algorithm</li> <li>• Efficacy of ACT not determined since its introduction</li> <li>• Lack of collaboration with other departments, e.g IMCI, private sector, etc</li> <li>• No mechanism for QC of medicines and diagnostics (Post marketing surveillance, Sentinel sites for RDT testing )</li> <li>• Delayed diagnosis and treatment of uncomplicated malaria (2-3 days)</li> <li>• Stock cards at peripheral facilities not up to date-(some ACTs expired)</li> <li>• Inadequate supervision of health workers at regional, district and facility level</li> <li>• No diagnosis and treatment services at community level</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Global Fund RCC proposal approved recently</li> <li>• Potential to collaborate with new Medical School at UNAM, and Medical Research Council of South Africa</li> <li>• Government commitment</li> <li>• There are 5 training centres in the country with two universities and polytechnic and are used for training of health workers</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• High staff turnover</li> <li>• Inadequate knowledge about malaria symptoms and prevention among women 15-49 yrs</li> <li>• Shortage of staff (most clinics are staffed by enrolled nurses)</li> <li>• The pharmaco-vigilance system not well taken up in some regions.</li> <li>• Lack of updated information on TET profile for Artemether – Lumefantrine.</li> </ul>

## SWOT ANALYSIS: Advocacy, Behaviour Change Communication, Community Mobilization

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Ongoing support and commitment from GRN</li> <li>• Current availability of funding from GFATM</li> <li>• Existence of a Communication and Advocacy strategy and the national Malaria Policy</li> <li>• Committed NGOs: SFH, DAPP, Nets for Life</li> <li>• Competent BCC advisory team from MoHSS &amp; NGO's</li> <li>• Technical support from Development partners e.g. WHO, UNICEF, Clinton Health Access Initiative and the Global Health Group</li> <li>• Use of mass media campaigns (major newspapers, radio/TV)</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• No mechanism for coordination of BCC advisory group</li> <li>• The challenge to reach remote rural areas due to limited appropriate transportation</li> <li>• Low risk perception of populations in endemic areas</li> <li>• Limited number of stakeholders</li> <li>• Limited focus for school children to reinforce behaviour change</li> <li>• The strategic plan (2003-2007) does not include all performance areas</li> <li>• NGO's monthly reporting to MOHSS Regional offices not done</li> <li>• NVDCP does not have a IEC/BCC Focal point</li> <li>• IEC Focal persons at Regional and District levels have not been appointed</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Greater cross-border collaboration with Angola, Zambia and Botswana</li> <li>• Ministry of Defence has operational capacity to reach remote areas</li> <li>• SADC financial support and guidance and in particular for pre-elimination phase</li> <li>• Lifestyle Ambassadors can potentially incorporate malaria messages (in addition to TB and HIV)</li> <li>• Community liaison officers through Ministry of Local Gov. Have wide reach and population coverage</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Lack of funding and uncertain sustainability of the program</li> <li>• Severe flooding limits accessibility of populations</li> <li>• High mobility of Namibian population</li> <li>• Low availability of LLINs for free distribution</li> </ul>

### ANNEX 3: NAMIBIA GLOBAL FUND ROLLING CONTINUATION CHANNEL (RCC) - MALARIA WORK PLAN

Activity	Timeline						
	2010	2011	2012	2013	2014	2015	2016
<b>GOAL – REDUCTION OF MALARIA INCIDENCE TO LESS THAN 1 CASE PER 1,000 POPULATION IN EACH DISTRICT</b>							
<b>OBJECTIVE 1 – PROGRAMME AND OPERATIONS MANAGEMENT</b>							
Service Delivery Area 1.1 - Build Human Resource Capacity							
Submit and motivate for new proposed structure and posts for NVDCP		X					
Recruit management support to coordinate planning and execution of malaria control at national, regional, district, and community levels. (Case Mgmt. Coordinator, IEC Manager, Surveillance/Information Officer, Insectary Manager, Administrator)	X	X	X	X			
<b>Service Delivery Area 1.2 – Strategic Partnerships for Malaria Elimination</b>							
Convene quarterly 1-day meetings of the national elimination task force and 4 technical committees (case management, vector control. Surveillance &EPR, Advocacy and BCC)		X	X	X	X	X	X
Conduct annual National Malaria Review Workshops with regional and district representation, and all implementing partners		X	X	X	X	X	X
Conduct bi-annual sensitization workshops to sensitize and lobby additional partners and funding		X	X	X	X	X	X
<b>Service Delivery Area 1.3 – Cross-border Collaborations</b>							
Convene annual meetings of the governing body of TKMI in Ondangwa (6 people for 2 days)	X		X	X	X	X	X
Recruit a full time Manager to oversee effective implementation and cross-border dialogue for TKMI operations; recruit existing NGO to serve as management unit		X	X	X	X	X	X
Conduct community-based distribution of LLINs across the border, with door-to-door distribution to attain universal coverage in select border districts	X	X	X	X	X	X	X
<b>OBJECTIVE 2 – CASE MANAGEMENT</b>							
<b>Service Delivery Area 2.1 – Diagnosis</b>							
Quantify and Procure Commodities for Parasitological Diagnosis			X	X	X	X	X
Revise Diagnosis & Treatment Guidelines, Training Manuals, Job Aids	X						
Establish case management technical committee to continuously provide expert guidance		X	X	X	X	X	X





