

SUSTAINABILITY OF STATE MALARIA CONTROL PROGRAMMES IN
NIGERIA: LOOKING BEYOND DONOR SUPPORT

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นายมุฮัมหมัดบาชีร์ยาเซีย : ความยั่งยืนของการควบคุมโรคมาลาเรียในประเทศไนจีเรียหลังการยุติการสนับสนุนจากองค์กรระหว่างประเทศ(SUSTAINABILITY OF STATE MALARIA CONTROL PROGRAMMES IN NIGERIA: LOOKING BEYOND DONOR SUPPORT)อ.ที่ปริกษาวิทยานิพนธ์
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งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษา1) ปัจจัยต่างๆที่สามารถช่วยให้การควบคุมโรคมาลาเรียประสบความสำเร็จ 2) ประเมินการสนับสนุนงบประมาณจากแหล่งอื่นๆ และ 3) สร้างกลยุทธ์การสนับสนุนในรูปแบบต่างๆเพื่อความยั่งยืนของกิจกรรมการควบคุมโรคมาลาเรียในพื้นที่ 4 รัฐของประเทศไนจีเรีย คืออาดามาวา กอมเบกาโนและซัมฟารา เนื่องจากเป็นพื้นที่ที่มีอัตราการตายของแม่และลูกเนื่องจากการคลอดบุตรและการเสี่ยงต่อการเป็นโรคสูง ใช้วิธีเก็บรวบรวมข้อมูลเชิงปริมาณโดยการทบทวนรายงานที่เกี่ยวข้องกับผู้ป่วยที่เป็นโรคมาลาเรียและผู้ป่วยที่ตายด้วยโรคมาลาเรียในทั้ง 4 รัฐ ส่วนการเก็บรวบรวมข้อมูลเชิงคุณภาพนั้นใช้วิธีสนทนากลุ่มและการสัมภาษณ์เชิงลึก

ปัจจัยที่ส่งผลต่อความสำเร็จในการจัดกิจกรรมต่างๆที่เกี่ยวข้องกับการควบคุมโรคมาลาเรียคือการจัดสรรให้ประชาชนได้ใช้มุ้งชุบสารเคมีแบบชนิดมีฤทธิ์คงค้างยาวนาน การแจกยารัตมิซิโนน (ACTs) และยาซัลฟา คีอ็อกซิน(SPs)การฉีดยาคันยุง การเสริมสร้างความสามารถให้กับเจ้าหน้าที่ที่เกี่ยวข้อง การจัดกิจกรรมเพื่อให้ชุมชนตระหนักถึงความสำคัญของมาตรการการควบคุมโรคมาลาเรีย เพื่อให้ชุมชนได้มีส่วนร่วมและเพื่อให้ความรู้เกี่ยวกับโรคมาลาเรีย

กลยุทธ์ต่างๆที่สามารถสนับสนุนการควบคุมโรคมาลาเรียอย่างยั่งยืนได้แก่ความต้องการ การจัดลำดับความสำคัญในการดำเนินงานและความพร้อมของทรัพยากรในแต่ละพื้นที่ซึ่งรวมถึง การสร้างความร่วมมือกับภาคเอกชน โดยเฉพาะในรัฐที่มีความพร้อมทางด้านเศรษฐกิจ สิ่งเหล่านี้ทำได้โดยการผลิตมุ้งสำหรับป้องกันโรคมาลาเรียและยารักษาโรคมาลาเรียโดยอาศัยงบประมาณจากรัฐบาลหรือการลดหย่อนภาษี

ส่วนกลยุทธ์อื่นๆที่สามารถทำได้คือการเปิดโอกาสให้ชุมชนได้เข้ามามีส่วนร่วมในการควบคุมโรคมาลาเรียโดยการจัดการฝึกอบรม การจัดทำแผนประกันสุขภาพชุมชนและการให้ความร่วมมือในการแจกจ่ายยาและมุ้ง การจัดกิจกรรมเพื่อให้ความรู้ความช่วยเหลือตามสถานที่ต่างๆ การสร้างความเข้มแข็งในเรื่องนโยบายต่างๆเพื่อการจัดการสิ่งแวดล้อมและการจัดระบบการควบคุมดูแลอย่างใกล้ชิดโดยเฉพาะในรัฐที่มีอาณาเขตติดต่อกับประเทศอื่น ทั้งหมดนี้สามารถทำให้กิจกรรมต่างๆเกี่ยวกับโรคมาลาเรียคงอยู่ได้แม้ไม่มีทุนสนับสนุนจากภายนอก

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The objectives of this study were to 1) identify success factors of malaria control, 2) assess financing alternatives, and 3) formulate alternative funding strategies for sustaining malaria control programmes in four Nigerian States of Adamawa, Gombe, Kano and Zamfara due to their high maternal and child mortality and morbidity figures. Quantitative data were collected through reviews of reports on malaria morbidity and mortality in the states. Qualitative data were collected using focus group discussion and in-depth interviews.

The main factors found to be behind the success of the state malaria control programmes included the provision of long lasting insecticidal treated nets, free distribution of ACTs and SPs, Indoor Residual Spray, building the capacity of health workers and community awareness and involvement in mobilization and enlightenment for malaria control.

Strategies based on the needs, priorities and resource availability for the different states are suggested as alternatives for sustaining malaria control. These include exploring partnerships with the private sector especially for states with high economic activities. This can take the form of local production of treated nets and malaria drugs through subsidy policy from the government and tax relief. Other strategies include involving the communities to contribute to malaria control through trainings, community health insurance schemes and participation in distribution of drugs and nets; vigorous resource mobilization; strengthening of environmental management policies and ensure strong surveillance systems especially in states with international borders. All these may provide windows of opportunity for making malaria programmes sustainable even in the absence of donor support.

Field of Study: Health Economics and Health Care Management Student's Signature.....

Academic Year: 2012..... Advisor's Signature.....

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LIST OF ABBREVIATIONS

ACSM	:	Advocacy, Communication and Social Mobilization
ACT	:	Artemisinin-based Combination Therapy
ANC	:	Ante-Natal Care
BCC	:	Behavior Change Communication
CDC	:	Centre for Disease Control and Prevention
CDI	:	Community Directed Intervention
CSR	:	Corporate Social Responsibility
DFID	:	Department for International Development (UK)
EM	:	Environmental Management
FCT	:	Federal Capital Territory
GFATM	:	Global Fund to Fight AIDS, TB Malaria
GMAP	:	Global Malaria Action Plan
HMIS	:	Health Management Information Systems
IHVN	:	Institute of Human Virology Nigeria
IPT	:	Intermittent Preventive Treatment
IRS	:	Indoor Residual Spraying
ITN	:	Insecticide Treated Net
IVM	:	Integrated Vector Management
LGA	:	Local Government Area
LLIN	:	Long-lasting Insecticidal treated Net
MBP	:	Malaria Booster Project
NDHS	:	Nigeria Demographic and Health Survey
NMCP	:	National Malaria Control Programme
NMIS	:	Nigeria Malaria Indicator Survey
PMI	:	President's Malaria Initiative (US)

RBM	:	Roll Back Malaria
RDT	:	Rapid Diagnostic Test
RMM	:	Role Model Mothers
SEPA	:	State Environmental Protection Agency
SFH	:	Society for Family Health
SMCP	:	State Malaria Control Programme
SP	:	Sulphadoxine-Pyrimethamine
UNICEF	:	United Nation Children's Fund
USAID	:	US Agency for International Development
WB	:	World Bank

CHAPTER I

INTRODUCTION

1.1. Problem and Significance

Malaria contributes to the global burden of disease with 216 million cases and 655,000 estimated deaths in 2010, with most deaths occurring among children in Africa (WHO, 2011). In Nigeria, malaria is endemic and remains a major cause of morbidity and mortality and is responsible for 60% of out-patient visits to health facilities, 30% of childhood deaths and 11% of maternal deaths. The financial loss due to malaria annually is estimated to cost the country about 132 billion Naira (approximately 815 million USD) in form of treatment costs, prevention, loss of man hours. (NMCP, FMOH Nigeria 2012)

Malaria burden may be reducing in Nigeria due to injection of colossal resources by multilateral and bilateral donor agencies like Global Fund (GF), USAID, DFID, WHO and UNICEF. These donor agencies contribute in no small measure to the malaria control efforts in different capacities by bridging the gaps that the national and state programmes cannot fill. The commitment of the external partners to Nigeria's malaria control and prevention programme between 2005 and 2010 was close to US\$ 600 million dollars (RBM Report 2012). However, there are serious concerns about the future of the malaria control programmes in terms of sustained funding especially in low and middle countries with severe resource constraints or mismanagement due to corruption. These concerns are founded in part on the World Malaria Report, 2011 which observed in its conclusion that there is a limited scope for malaria to attract additional international financing having accounted for about 8% of Official Development Assistance (ODA) for health and population. The report further observed that malaria financing has received a considerable proportion of health and population financing and considered further increase in malaria financing within the health sector financing to be unlikely.

The donors as part of their engagement with the recipient governments insist on seeing a plan for sustaining the activities they support. Sustaining the tempo of incoming funds from the donors in the future, to continue scaling-up malaria control

and drug and insecticide resistance continue to pose serious threat to the fight against malaria.

Malaria financing in Nigeria, especially in the states is not fully taken up by the state governments due to other competing health priorities and resource constraints. The state malaria control programmes therefore do not carry out full activities of malaria control as the budgeted amounts are not readily released for implementation. The donor organizations supporting malaria activities fill in the gaps especially in terms of commodities like the LLINs, drugs and capacity building for the health staff of these states. This situation creates reliance on the donors making the states programmes to be complacent in planning and forecasting for the future, thus raising the question of how the programmes will be sustained should there be withdrawal of funding.

The states in the north east and north west of Nigeria have been shown to be having very poor health indicators. The maternal and child mortality and morbidity are very high, coupled with low literacy and high poverty levels. Malaria indicators in the states like mosquito net ownership and its usage by pregnant women and children under 5 years and the use of antimalarial prophylactic are also very low. (NDHS, 2008). The malaria control programmes of four of these states Adamawa (ADM) and Gombe (GME) (from the North East) and Kano (KAN) and Zamfara (ZAM) from the (North West) are selected for this study. Gombe state is supported by the World Bank malaria booster project while Kano has a DFID supported malaria programme SuNMaP in addition to the World Bank malaria booster project. Zamfara state has recently got the support of a USAID supported project Malaria Action Programme for States (MAPS). Adamawa State on the contrary, does not have a donor supported malaria programme and hence considered as the reference state.

It is against this background that this study wants to look at the success factors in these states and assess with a view to broadening the scope of the financing alternatives available to them for funding and sustaining malaria control, based on their priorities and resource availability for replication by other states.

This calls for strategic planning to explore and look for alternative and innovative ways of sustaining the funding for malaria control. The states governments can consider better management of scarce resources available to them through prudent budgeting and prioritization, fostering Public-Private partnerships and encouraging community efforts as alternative sources of getting additional funding.

In the long run, heavy reliance on donor funding to achieve malaria control will be greatly reduced. This will assist the state malaria programmes in designing and replicating cost-effective measures in programme implementation by replicating the key lessons learnt from the donor driven projects. It will also improve budgeting for malaria and prioritization of programme activities to achieve maximum impact.

Policy makers in the states might see the daunting challenges they have ahead of them and be able to focus on health policy reforms that will achieve the most cost-effective and sustainable malaria control strategies.

1.2. Research Question

Can the state malaria control programs have the institutional capacity and resources to sustain their programmes outside donor support?

What are the potential opportunities they can leverage sustainable funding support from?

1.3. Research Objectives

1.3.1. General objectives

To formulate strategies for the alternative funding of state malaria programmes in order to sustain their activities, within their resource constraints and priorities, in the absence of donor funds, based on the identified key successes of the donors.

1.3.2. Specific objectives

1. To identify the key success factors based on existing literature review and the achievements in the four states.
2. To assess financing alternatives in order to achieve comparable outcomes given the potential withdrawal of donors.

3. To formulate strategies highlighting the priorities of the states

1.4. Scope of the Study

The scope of this study is the State Malaria Control Programmes in four Nigerian States – Gombe State has the support of the World Bank through the World Bank Booster Malaria Project while Kano State enjoys the support of a DFID supported Support to National Malaria Control Programme (SuNMaP) in addition to the World Bank Malaria Booster Project. Zamfara State also has a USAID funded Malaria Action Programme for States (MAPS) extending support to it, while Adamawa State is without donor support. Activities supported by the donors and state malaria programmes for the period of 2007 to 2011 with emphasis on preventive aspects like LLINs, SPs and Environmental Management form the scope of this study.

1.5. Hypotheses

1. Malaria control activities will be significantly affected by the cessation or withdrawal of donor funds.
2. Community participation and funding, proper malaria surveillance and mapping, public-private partnerships and efficient use of resources by the government will sustain malaria control programmes.

1.6. Expected Benefits of the Study

1. The study will be of benefit to policy makers, funders and programme managers to plan for sustainability of health programmes based on available evidence
2. Based on the identified factors promoting sustainability, it will be possible to align programme with the health needs of the population
3. Strategic plan for the malaria programme in the short, medium and long range can be done using the identified success factors and alternative financing mechanisms based on the contexts and priorities of the states.

4. It will also prepare recipient governments to plan for the smooth transition of donor funded programmes back to government funding when funding stops.

5. It will improve value for money by efficient spending of funds on only targeted aspects of the malaria control which are most important.

1.7. Background and Global Burden of Malaria

Malaria is a mosquito-borne infectious disease caused by a parasite known as "Plasmodium". The four most common species of the parasite that infect humans are *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium malariae* and *Plasmodium ovale*. The most fatal and dangerous form of the disease is caused by the *Plasmodium falciparum* species. Malaria caused by "Plasmodium vivax", "Plasmodium ovale" and "Plasmodium malariae" causes milder fatalities humans. All of these species are transmitted to the human by the female *Anopheles* mosquitoes. Malaria caused by any of the four *Plasmodium* species is characterized by fever, chills, malaise, and headache. (WB, 2011)

There are approximately 350–500 million clinical cases of malaria annually, causing over one million deaths. The majority are young children in Sub-Saharan Africa under the age of five that are affected, dying at the rate of 3,000 every day. In sub-Saharan Africa, malaria is responsible for 30 per cent to 50 per cent of all outpatient visits to clinics and up to 50 per cent of hospital admissions. The disease contributes to maternal mortality and morbidity and has serious consequences on the economic growth of the continent and leads to poverty as \$10 to \$12 billion is lost in GDP annually. (UNICEF, 2004)

Malaria is commonly associated with poverty, but is also a cause of poverty and a major hindrance to economic development. A number of studies have shown a relationship between malaria and poverty. The Earth institute, Columbia University which promotes research into issues like disease, poverty and sustainable use of resources sees malaria and poverty to be intimately connected and judged as both a

root cause and consequence of poverty. This is based on the observations that the poorest countries of the world suffer the most intractable cases of malaria and that the annual growth in countries with high malaria transmission is lower as compared to countries without malaria. Studies in African countries with malaria endemicity have shown growth rates 1.3% lower than those without malaria. The prevalence of malaria in a community or country, impacts on social and economic decisions. The risk of infection with malaria can affect investment opportunities in malaria prone areas. This has negative impact on individuals and households as there will be diminished productivity and growth. Markets will remain undeveloped as traders might not be keen to engage in trading activities in malaria areas for fear of contracting the disease. (The Earth Institute, 2013)

The World Health Organization estimates that malaria caused approximately 655,000 deaths globally in 2010. Most are in young children in sub-Saharan Africa. Malaria can also cause dangerously low birth weights and permanent disability. In Africa alone, costs of illness, treatment, and premature death from malaria are at least \$12 billion per year. (CDC, 2013)

Malaria is widespread in sub-Saharan Africa and the poorest communities are most affected. This is due to fact that they cannot afford to buy basic treatment drugs (ACTs) and insecticide treated nets (ITN) which together are the necessary tools for the treatment and prevention of malaria. Once malaria has developed, it leads to loss of lives and draining of scarce resources thereby putting the target groups at more risk.

Malaria costs Africa over £8 billion in lost economic output, and 40% of expenditure in affected countries is spent on malaria drugs. (The Global Poverty Project, 2013)

With the observed burden which malaria puts on the economy and peoples of Africa, and Nigeria being the country carrying the highest disease burden of malaria in the continent, it becomes imperative to sustain malaria control programmes by

considering economically viable and cost effective funding mechanisms. This is what this study is set to achieve by analyzing the realities on ground and put across to the state malaria programmes in Nigeria for consideration and implementation.

1.8. Nigeria Malaria Situation

Nigeria is situated between 4° and 13° Northern Latitude and therefore makes it a suitable climate for malaria transmission. The five ecological strata from South to North of the country- mangrove swamps and rainforest in the south; to guinea, Sudan and Sahel savannah in the north- determine the distribution of the vector species, transmission of malaria and duration of the transmission season. The duration of the transmission season decreases from year-round transmission in the south to three months or less in the north.

Malaria accounts for about 60% of outpatient visits and 30% of hospitalizations in Nigeria. It is a leading cause of mortality in children under five years of age, responsible for an estimated 300,000 deaths in children under five years of age each year. It also contributes to an estimated 11% of maternal mortality (FMOH, 2008).

Table 1 Nigeria Country Statistics

Indicator	Figure
Population size (2009)	154 million
Life expectancy (2005)	46.5 years
Child Mortality (Deaths Before the Age of 5) (2007)	189 per 1,000 live births
Maternal Mortality (2005)	1,100 per 100,000 births
Percentage of HIV-positive adults (15-49) (2007)	3.1%
Percentage of households with ≥ 1 mosquito nets (2007)	12%
Percentage of Insecticide Treated Net Coverage (2006)	11.9%
Number of reported malaria cases (2007)	2,969,950
Number of reported malaria deaths (2007)	10,289

Source: Malaria Consortium Nigeria, 2013.

Figure 1 Map of Nigeria showing the 36 states and the FCT



Source: http://www.nigerianbern.org/states_in_nigeria.htm

1.9. Malaria Control in Nigeria

The strategy adopted by the RBM Partnership in malaria control is to reduce malaria morbidity and mortality through reaching universal coverage of malaria interventions for all the populations at risk and strengthening of health systems by way of staff training to build their capacity for better planning, management and coordination of activities at all levels. The Global Malaria Action Plan defines two stages of malaria control: 1) *scaling-up for impact (SUFi)* of preventive and therapeutic interventions, and 2) *sustaining control* over time. (RBM, 2008)

In scaling-up for impact, the goal is to rapidly reach universal coverage for all populations at risk with locally appropriate malaria control interventions (i.e. LLINs, IRS, IPTp, ACTs and RDTs), supported by strengthened health systems. Delivery strategies may involve mass campaigns, distribution of interventions through existing public- and private-sector outlets, and by community health workers, for example.

Strengthening health systems, including capacity building, for malaria control must begin during scale-up and continue beyond this.

Sustaining control is important to prevent the resurgence of malaria. After core interventions are scaled up, the malaria burden will drop and the need for case management is expected to fall dramatically.

However, malaria control will not eliminate the mosquito vector, the parasite, or the favourable environmental conditions for transmission in many locations. To keep malaria at bay, countries must maintain high levels of coverage of preventative interventions even in the absence of a large number of cases. Relaxation of control — as a result of the decline in political will, a decrease in funding, or any other reason — increases the risk of resurgence in transmission and of epidemics.

National Malaria Control Programme (NMCP) in Nigeria has the responsibility of coordinating all malaria control activities in the country.

The NMCP and RBM partners in Nigeria employ the global multiple strategies of malaria control which proved effective. These are IVM through use of LLINs, IRS and EM; prompt diagnosis and treatment the use of RDTs and ACTs and IPT for pregnant women.

1.10. Prevention/Vector Control (IVM)

Under the IVM strategy for malaria prevention, the major intervention is the use of insecticide treated nets (LLINs). These are distributed either to the target groups (children under 5 years and pregnant women) routinely through public facilities or through mass distribution campaigns targeting all households. The routine distribution is sometimes integrated with ANC and immunization services. Another mode of distribution is through the commercial sector at subsidized prices.

Indoor residual spraying (IRS) also forms one of the important IVM strategies for malaria control. It was used in Nigeria by WHO between 1955 and early 1970s in

urban centres but later discontinued. This strategy will entail building the capacity of the states to carry out IRS by starting in piloted areas and expanding gradually.

Environmental management (EM) is the third IVM method of malaria control. It deals with the management of the environment through better sanitation activities and mosquito larval control by identifying and targeting breeding sites.

1.11. Treatment and Diagnosis

Prompt and effective diagnosis and treatment of malaria cases is a key strategy in malaria control. The population should have access to the ACTs used as the new anti-malarial drugs within 24 hours of malaria onset in both public and private facilities. RDTs are to be used for parasite confirmation especially in areas where there are no laboratory microscopic services. All these can be achieved through improved malaria case management and increasing the demand of the population to use the nets and the ACTs.

Referral mechanisms for severe malaria have to be strengthened and pre-referral malaria treatment in both secondary and tertiary facilities improved.

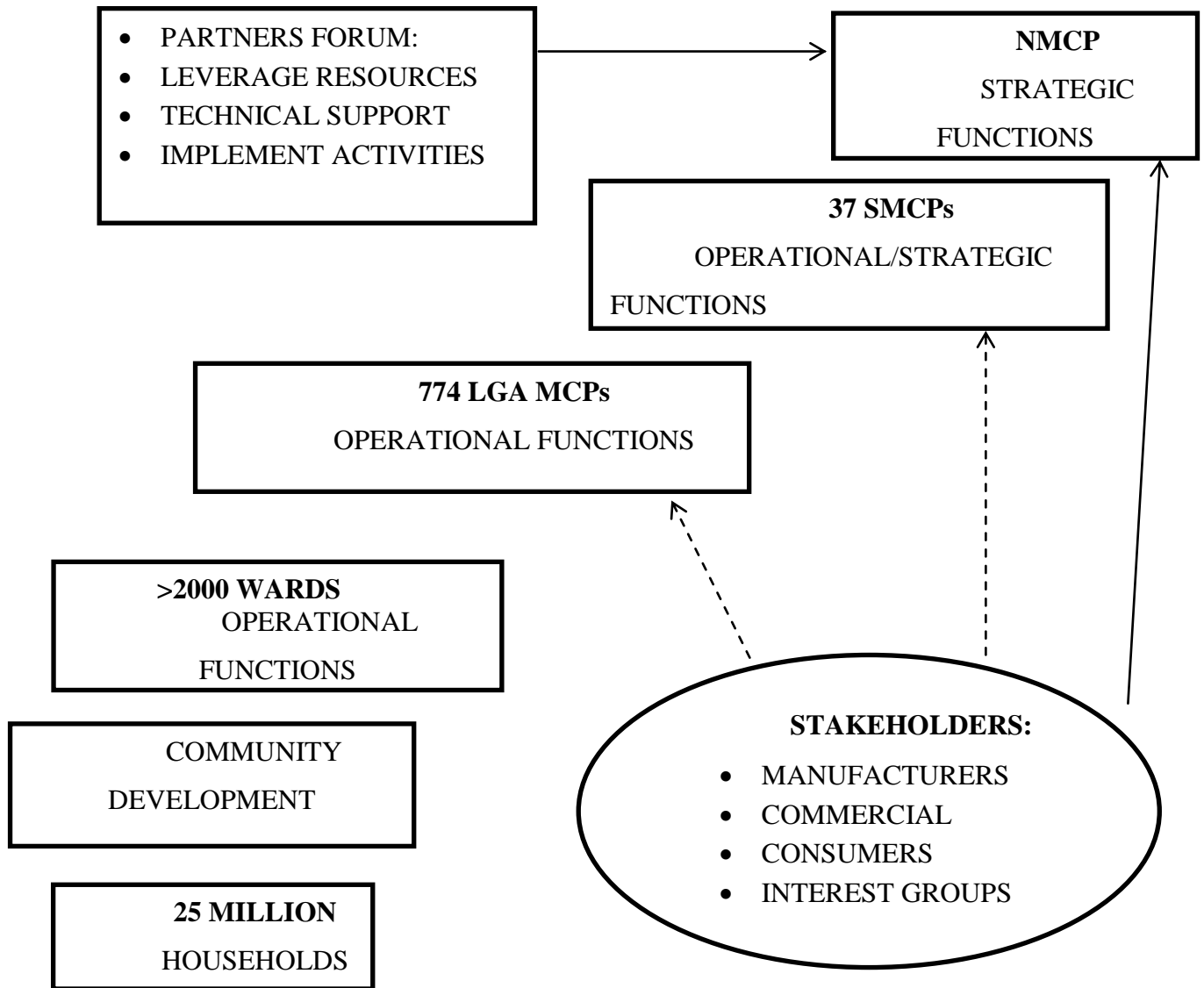
1.12. Intermittent Preventive Treatment (IPT)

Intermittent Preventive Treatment of Malaria in Pregnancy is the third control strategy adopted by the NMCP. This strategy targets pregnant mothers to receive at least 2 doses of SP during their pregnancy to protect them and their newborn children against malaria. This will translate into a decrease in maternal and child mortality in the society.

1.13. Cross-cutting Interventions

Other cross-cutting interventions include advocacy, communication and social mobilization, efficient programme management, monitoring and evaluation, partnerships and collaborations. The NMCP along with the RBM partners and donors developed a National Strategic Plan which addresses malaria control issues in the country. The goal of the malaria programme is to reduce malaria related morbidity and mortality in Nigeria by 50% in 2010 thereby minimizing its socio-economic impact. The prevention and control activities are guided by the results of the monitoring and evaluation as well as operational research done. (NMCP, F. (2008)

Figure 2 Institutional Arrangement for Malaria Control in Nigeria



Source: National Malaria Control Programme (NMCP), 2012.

1.14. Major Partners Supporting Malaria Control in Nigeria

1.14.1. Global Fund

Nigeria has so far received a disbursement of over \$828 million from the Global Fund to support the fight against AIDs, Tuberculosis and Malaria. The first grant from GF to Nigeria was signed in 2003 with subsequent grants in 2004, 2006 and 2008. The fund supports the states with ITNs, SPs for pregnant women and ACTs for malaria case management. The grants are through the National Malaria Control Programme (NMCP), Yakubu Gowon Centre for International Cooperation (YGC), Institute of Human Virology Nigeria (IHVN), Association for Reproductive and Family Health (ARFH), National Agency for the Control of Aids (NACA) and Society for Family Health (SFH). Malaria support is in form of provision of malaria commodities to all Nigeria states with the exception of the 7 World Bank supported states.

1.14.2. World Health Organization (WHO)

The major role of WHO to malaria control in Nigeria is in the area of technical assistance to NMCP to develop policies and guidelines related to malaria control. Each of the 6 geopolitical zones of the country has a WHO regional officer to oversee the zone and give technical support to the programme. (USAID, 2012)

1.14.3. United States Agency for International Development (USAID)

USAID in Nigeria supports malaria control in Nigeria through its PMI (President's Malaria Initiative). This is coordinated through its Malaria Action Programme for States (MAPS) Programme. This is a 5-year \$79.9 million project that supports the NMCP and 7 states in Nigeria to increase the quality, access and uptake of malaria control interventions. It supports scaling-up of malaria control methods, strengthens programme management and monitoring and evaluation at national, state and local government levels. (MAPS, 2012)

The strategies of the programme align with the national strategic plan for malaria and its major activities include:

1. Collaboration with national, state, LGA and private sectors to increase LLINs in homes through mass distribution and top-up campaigns, improving retail networks and supporting consistent and correct use of nets through radio and community educators;
2. Expanding delivery of IPT to pregnant women through increasing demand for ANC attendance, improving capacity of ANC facilities and training on correct IPT procedures;
3. Liaising with policy makers to improve malaria treatment and diagnosis;
4. Bring about behavioural change through community sensitization on the use of treated nets especially by pregnant women and children.
5. Building the capacity of state officials towards better management, resource mobilization, monitoring and evaluation and Health Management Information systems (HMIS).

1.14.4. UK Department for International Development (DFID)

The UK Department for International Development (DFID) supports malaria control in Nigeria through its funded programme SuNMaP (Support to National Malaria Programme). SuNMaP is a five-year (2008-2013) fifty million pounds (£50m) programme that operates in 6 Nigerian states. The programme works with the NMCP to harmonize donor efforts and funding agencies around agreed national malaria policies. (MC, Nigeria 2013)

The outputs of the programme are:

1. Improve capacity for policy development, planning and coordination at national, state and local government levels
2. Improve population coverage of effective measures for malaria prevention.
3. Improve access of population to effective malaria treatment
4. Increase community awareness and demand for effective malaria prevention and treatment

5. Operational research into key areas of prevention and treatment of malaria.

1.14.5. *World Bank*

The World Bank supports malaria control in Nigeria through its Malaria Global Strategy and booster programmes. In 2006 the World Bank approved US \$180 million Malaria Control Booster Project for Nigeria. Currently seven states of the country are covered and the strategies of the project align with the Roll Back Malaria Plan. Support is for malaria commodities in the area of prevention and treatment.

The booster will ensure that the target population will use and have access to effective malaria interventions by strengthening capacity of the federal and state governments to deliver them. It will support the procurement of more than 6 million LLINs, 6 million ACTs and support IRS where appropriate. (WB, 2012)

1.14.6. *UNICEF*

UNICEF in Nigeria also works in close collaboration with the RBM partnership to support malaria interventions. Its primary focus is the provision of SPs for Intermittent Preventive Treatment to pregnant women which it supports through the ante-natal clinics. It distributed LLINs to some states of the country through the universal coverage campaigns.

Figure 3 Donor Organizations - coverage and areas of support

DONOR ORGANIZATION	COVERAGE	NATURE OF SUPPORT					
		LLINs	SP	IRS	ACTs	RDTs	CAPACITY BUILDING
GLOBAL FUND	29 STATES	√				√	√
USAID (MAPS)	7 STATES	√	√	√	√	√	√
DFID (SuNMaP)	10 STATES		√		√	√	√
WHO	36 STATES						√
UNICEF		√	√				
WORLD BANK	7 STATES	√		√		√	√

Source: Nigeria National Malaria Control Programme, NMCP 2012.

1.15. Malaria Situation In the four Study States

1.15.1. Adamawa State

Adamawa state is located in the North Eastern part of Nigeria and shares borders with Gombe, Borno and Taraba states and the Republic of Cameroon. The state has a population of 3,058,352 with total area of 39,742.12 square kilometres. It lies between 8°00' N and 11°00' N and Longitude 11.50 and 13.50 E.

The climate is characterized by wet and dry seasons and the average rainfall is 79 mm in the north and 197mm in the southern part. There are two vegetation zones in the state; the sub-Saharan zone and northern guinea savannah zone.(Adamawa State Government, 2012)

Falciparum malaria is highly endemic in Adamawa state, north-eastern Nigeria, with prevalence levels up to 80% in the southern regions of this state.

1.15.2. Gombe State

Gombe State is one of the 36 states of the federal republic of Nigeria, located in the Centre of the north eastern part of the country. It lies on latitude 9°30' and 12°30'N, Longitude 8°5' and 11°45'E. It is bordering Borno, Yobe, Adamawa, Taraba, and Bauchi states, with a land area of 20,265 Sq.km. The State has a population of 2,353,879 ((National Population Commission, 2006)), and the vegetation is guinea-savannah grassland. Gombe has two distinct climates, the dry season (November–March) and the rainy season (April–October) with an average rainfall of 850mm.

Malaria in Gombe is a significant and leading cause of morbidity and mortality particularly amongst children less than five years and pregnant women. The outcome of the disease surveillance reported from LGAs during the period 2011 to first half of 2012 is encouraging in terms of death reduction. For instance, the total cases reported for 2011 was 240,534 with 440 deaths while in 2012, the total cases reported was 123,101 with 96 deaths (Jan to Jun). The cases for children under five were equally the same- 87,484 with 252 deaths (2011) and 49,182 with 110 deaths (2012, Jan to Jun). For pregnant women in 2011, the reported cases were 19,960 with

24 deaths whereas 7,827 cases with 9 deaths were reported in 2012 (Jan. to Jun). (Gombe State Malaria Control Booster Project, 2012)

1.15.3. Kano State

Kano state is situated in the North Western geo-political part of the country. It borders Katsina, Jigawa, Bauchi, plateau and Kaduna states and also shares an international border with the Republic of Niger.

It lies between latitudes 10.30⁰N to 13⁰ N; and longitudes 7.40⁰E and 10.39⁰E. The 2006 population and housing census in Nigeria placed Kano State population at 9,383,682, making it the most populous state in Nigeria.

According to the NDHS 2008, the social indicators are poor with low literacy and high poverty levels (77% in North West zone), high child-adult dependency ratio; low level of nutrition and poor access to quality, essential health care. Life Expectancy at birth for males is 51 years and for females is 52.2 years.

Kano State falls within the Sudan and Sahel-savannah ecological zone. The duration of the peak malaria transmission season occurs from April to November in Kano State and is shorter than the mangrove and rain forest belts of southern Nigeria.

Dominant vector species are *Anopheles gambiae* and the *A. funestus* group with some other species playing a minor or local role.(KNMOH, 2011)

Malaria is a major source of morbidity and mortality in Kano state. It currently enjoys the support of the DFID through the Support to National Malaria Programme and the World Bank support through the malaria booster project.

1.15.4. Zamfara

Zamfara State is located in the North Western part of Nigeria and it is one of the states with extremely poor health indicators. It has high maternal and child mortality of which malaria contributes this burden.

The state has an area of 38,418 km² with a population of 3,278,873 according to the 2006 census. It borders with the Republic of Niger; Katsina, Sokoto and Kaduna states. The climate is warm tropical with temperature rising to 38⁰ C between March and May.

Rainy season begins from May to September with a cold season (harmattan) from December to February.

Table 2 Malaria Indicators for the 4 study states

MALARIA INDICATOR	STATE			
	ADM	GME	KAN	ZAM
<i>Mosquito Net Ownership</i>				
% with at least one net (any)	13.1	28.6	11.7	12.4
% with at least one insecticide treated net	13.1	28.5	11.4	12
Average no of ITNs per household	0.1	0.3	0.2	0.1
<i>Use of ITNS by Children Under 5</i>				
% of children who slept under ITN	2.1	11.8	3.3	2.8
<i>Use of ITNs by Pregnant Women</i>				
% of pregnant women 15-49 who slept under ITN	1.9	14.7	4.4	2.8
<i>Use of Anti-Malarial Prophylactic and IPT for Pregnant Women</i>				
% Women age 15-49 who received any antimalarial drug	10.8	20.7	13.8	15.2
% Women who received 2+ doses of SP at least one during ANC visit	1.6	4.2	7.4	3.8

Source: NDHS, 2008

Table 3 Study States and main donors supporting malaria control

STATE	MAIN DONOR(S)
Adamawa	State Support through MOH
Gombe	World Bank Booster Project
Kano	DFID and World Bank Booster Project
Zamfara	USAID

Source: Adamawa, Gombe, Kano and Zamfara Ministries of Health, 2013.

CHAPTER II LITERATURE REVIEW

2.1. Concept of Sustainability

In the development realm, the idea of sustainable development has been a subject of interesting debate as it relates to different spheres of human development. What does sustainability in the context of health programming and implementation mean and what are the major concerns of health interventions that are not sustainable to the public health systems and the economy? A large body of literature from previous research works discusses the concept and the factors that affect it. This review specifically centres on the existing and previous approaches and empirical research about sustainability as it relates to malaria control programmes especially in the middle and low income countries. The idea is to design a framework that will identify and guide strategies that will make malaria control programmes sustainable.

A number of definitions have been advanced and summarized by Shediach-Rizkallah & Bone, (1998). They identified three areas which definitions of sustainability focus on - maintenance of health benefits; maintenance of identified activities and maintenance of capacity building. Maintenance of health benefits in public health refers to the concepts and approaches that are used to keep track of health-related behaviors to assure the control of disease. This is important because many programmes are prematurely terminated resulting in negative health outcomes. Preventive health care interventions for infectious and chronic diseases control require slow sustained health behaviors.

Maintenance of identified activities or institutionalization refers to integration of the programme within an organization, the purpose of which is to get the programme interventions integrated into community organizations after funding withdrawal.

Capacity building on the other hand sees to the training of community members on the technicalities of the interventions, so that they become repositories of

health information and expertise for their communities. All the above pivots of sustainability require sustained resources, strong commitment and political will from the side of the programme, its drivers and the community for sustainability to be achievable.

Other broad and multidimensional definitions of sustainability have also been advanced.

“ The ability of a project to function effectively, for the foreseeable future, with high treatment coverage integrated into available health care services, with strong community ownership using resources mobilized by the community and government” (WHO, 2002)

“ The long term ability of an organizational system to mobilize and allocate sufficient and appropriate resources (manpower, technology, information, finance) for activities that meet public health needs and demands” (Olsen IT., 1998)

2.2. Factors associated with Programme Sustainability

A review of literature from previous researches reveals a number of factors that aided the sustainability of different health programmes. To be sustainable donor programmes should align with the health systems and the corresponding environmental conditions. In a research carried out by Save the Children Fund on the sustainability of health systems done in Nepal, Uganda, Pakistan, Ghana and Vietnam at different times, it was found out that investment strategies corresponded with environmental conditions and did not clash with them, investment practices oriented to the development needs of the health system rather than the institutional needs of donors and health ministries.(Gruen et al., 2008).

In another research done on the control of malaria in rural Malaysia by training community volunteers and provision of simple diagnostic and treatment kits, it was reported that incentives for health volunteers, state and district political support, budgetary restrictions, supervised training of volunteers, effectiveness and drug resistance, volunteers and community ownership and monitoring and assessment were

all factors associated with the sustainability of the programme.(Bhatia & Rifkin, 2010; Hii et al., 1996)

Gurtler, Kitron, Cecere, Segura, & Cohen, (2007) in a research for chaga's disease prevention in Argentinian rural villages by community wide insecticide spraying, found out that sustainability of the programme – measured by continuance of spraying, domestic infestation and infection rates – was aided through community involvement, locally nominated leaders, provision of insecticides, supervised distribution, local adaptation and local leadership.

Community participation was also identified as key component of implementation of primary health care (PHC) activities, and its benefits include better utilization of existing health services; ensuring sustainability; contribution of resources and change in behavior towards poor health by the community members. (Bhatia & Rifkin, 2010)

Eliason, (1999) attributed the sustainability of a chronic disease prevention programme in north eastern Cameroon - where the village health committee was used to distribute funds for community-led health programmes - to the support received from traditional rulers and accountability to the village health committee among other factors.

The experience of Mexico in establishing collaborative agreements with civil society organizations was also studied in order to establish the feasibility of government entering into partnership with NGOs in the field of reproductive health. Partnerships were identified as options in the provision of reproductive health services especially in areas where the population is under-served or with no government provision. (Gómez-Jauregui, 2004)

The success of malaria control programmes partly depends on the proper epidemiologic mapping of malaria endemic areas from country level to district and village levels. This will enable malaria control efforts to target areas of high incidence

and prevalence and incorporate them into the surveillance system. Absence of this mapping will have serious implications for malaria control sustainability. (Sullivan D, 2010)

Planning for the availability of financial resources, their mobilization and regular flow and how they are utilized are key components of measures aimed at achieving sustainability of health programmes. In relation to malaria control, maintaining and expanding coverage, continuous surveillance, research and development into new antimalarial drugs, building the capacity of health workers to diagnose and promptly treat malaria cases are all issues that require financing in both the short term and the long run. Therefore, for malaria control programmes to be sustainable, they should have a realistic and robust financial sustainability plan based on their contextual needs and priorities.

In any financial sustainability plan, the analysis of the difference between the current available resources and the future resource requirements – known as gap analysis – is necessary as it one of the basic conditions of financial sustainability.

Two key strategies were found to be important factors for sustaining programmes after discontinuation of funding. These were “redefining the scope of services being offered and creative use of resources”. A clear grasp of these strategies when the funding is on-going and planning for their development increases the likelihood of programme sustainability. (LaPelle, 2006)

In a study carried out in Ghana investigating six communities with different capacity to sustain externally supported community participation activities beyond the life of the donor-supported project, findings indicated that “leadership and social cohesion were the two most vital elements in sustainability of organizational structures intended to promote community participation in the oversight of local schools”(Chapman, 2006).

In a study to evaluate the characteristics of interventions associated with positive asthma outcomes from peer-reviewed literature, it was identified among other

factors that “programs were more likely to report a positive impact on health outcomes if they (i) were community based (ii) engaged the participation of community based organizations (iii) tailored content or delivery based on individual health or educational needs and (iv) collaborated with other organizations and institutions and with government agencies”. (Noreen Clark, November/December 2009)

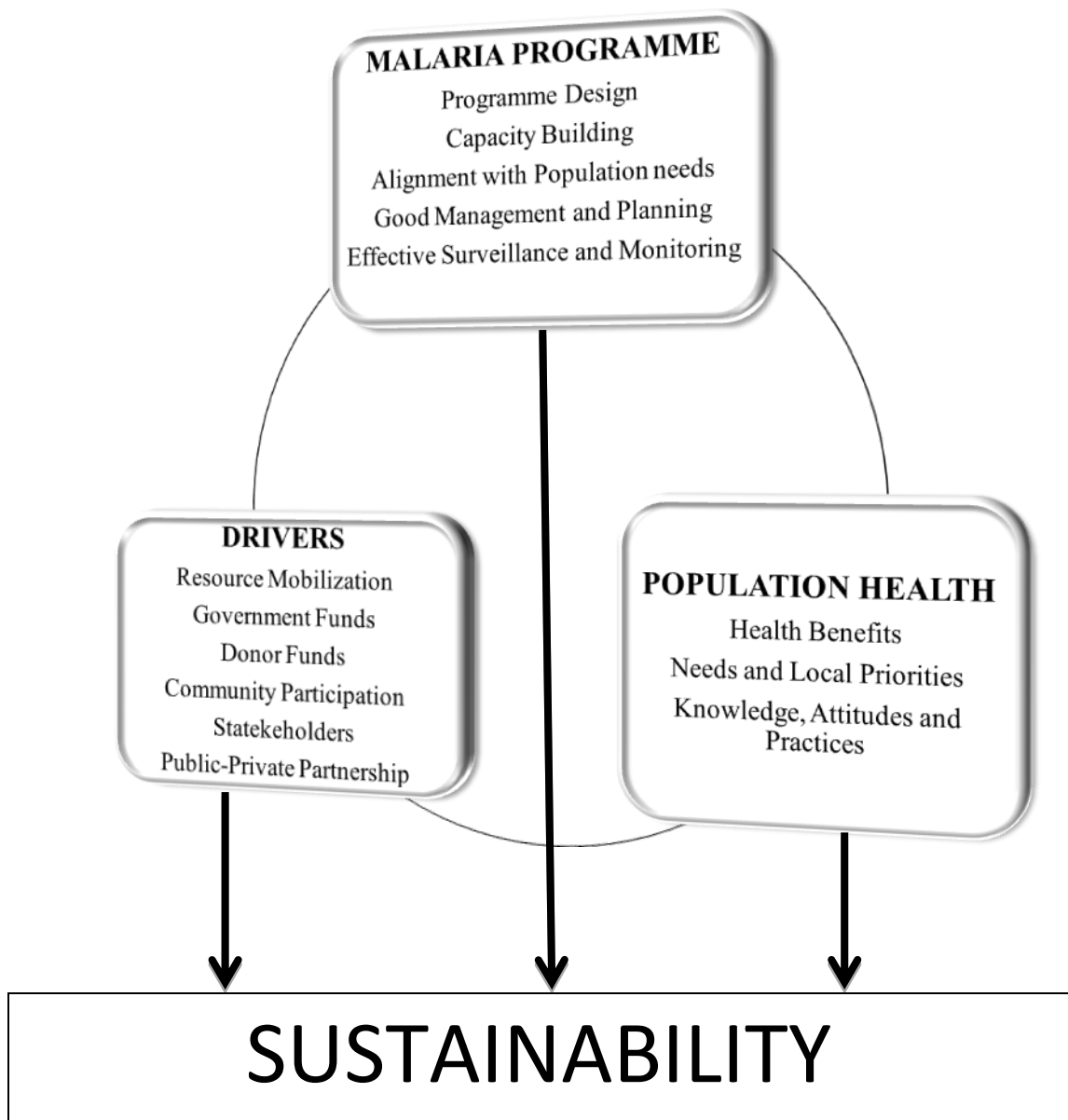
In a comparative cross-sectional study carried out in Ethiopia - using qualitative analysis - among women who participated in Community based Reproductive Health interventions in south Gondar zone, the Focus group discussions and key-informant interviews revealed that involvement of community leaders and health workers in selecting and supervising of the community based Reproductive Health agents was responsible for the success of the programs recorded in areas with high success rates. (Daniel Argaw, 2007)

In a study to document the progress and success factors of malaria control and elimination in Sri Lanka which had a long history of malaria control, the incidence of malaria was found to decline by 99.9% in 1999 despite being a long-standing conflict zone. Factors identified to aid this success included indoor residual spraying, distribution of long lasting insecticide treated nets and vector control and surveillance measures. (Rabindra R. Abeyasinghe, 2012)

CHAPTER III RESEARCH METHODOLOGY

3.1. Conceptual framework

Figure 4 Conceptual framework for Malaria Programme Sustainability



The framework above devised by Gruen et al, (2008), is used as a model to plan for sustainability of the malaria programme. It considers the health system as a

complex system with three key components which interact with each other in particular context with defined resource availability. These components are the health concerns of the population, programme elements and drivers of the programme.

It is the equilibrium between the interactions of these components that will lead to the sustainability of the programme.

Malaria program must have some important elements to be able to function effectively. These include the design of the program within the context of its operational environment and aligning it with the needs of the population. It also needs to have good management team requisite skills and experience to plan and manage it well. This will happen through a well-planned capacity building program for its staff. Setting in place effective surveillance and monitoring is also mandatory for all malaria programs. Along with all these, there must be a strong funding support from the government, donors, NGOs, CBOs and the communities for the program to continue discharging the responsibility of malaria control.

On the other hand, the malaria program must have essential drivers to ensure that activities continue. An effective resource mobilization, funding support from the government and other sources with strong private partnerships are financial levers of the program. The active participation and contribution of the community members and stakeholder involvement in planning and implementing the program are also necessary to drivers.

The population targeted with the malaria intervention is also a key to the success of the program. The community members must be seen to be deriving health benefits from the intervention and their needs and local priorities factored into the program activities. Their knowledge and attitudes towards the intervention has to be made positive and will help to give a feedback on further planning or reprogramming.

All the three components above interact with one another for the successful implementation of malaria control programs and also determine their eventual sustainability in any given setting.

Malaria programme can be tailor-made for each state as different states may have different priorities and disease burden. Programming for malaria does not have to be uniform as it would depend on the interaction between “drivers” and “population health”. It is possible that some states may require prevention more than control and others may require control more. Resource mobilization, government funding, donor funding and support, stakeholder participation and community involvement are the basic drivers as well as the financial levers of a malaria programme. These drivers in turn interact with the elements of the malaria programme design for the programme to be successful. Good management, effective monitoring and supervision, are essential for the programme to succeed. Capacity building programme, given available resources is an important part of the programme design that will change the behavior of the people and therefore malaria incidence. For the programme to be successful, it has to consider three important aspects in its design. These are:

1. The role of people in terms of malaria control and prevention
2. The role of traditional healers and community health workers as well as their ability to implement the malaria control and prevention strategies in their communities
3. The role of government in terms of supporting the programme e.g. in the timely provision and delivery of drugs.

Based on the interplay of the above factors, states can identify elements of the malaria control programme design that best suit their contexts and within their own financial constraints and be able to formulate strategies - short, medium and long term - that will bring about programme sustainability.

3.2. Study Design

The design of the study is based on a choice of 4 states for the study. The selected states are all in the Northern part of the country due to their high malaria prevalence and poor child and maternal mortality rates as compared to the Southern parts of the country. The idea is to assess the nature of the activities support and the expenditures incurred as well as identify their success factors. The state that has no

donor support will be as a control state as its activities are determined from the state government budget.

State 1 – Adamawa that does not have a state supported donor malaria programme. All the expenditure on malaria control activities comes from the state ministry of health budget through the state malaria control programme (SMCP).

State 2 – Gombe state which has a World Bank support through the World Bank Malaria Booster Project in the state.

State 3 – Kano state which has both World Bank Booster Malaria Programme and a DFID funded malaria Programme (Support to National Malaria Programme) in the state.

State 4 – Zamfara- a USAID supported state where expenditure on support to malaria activities comes from the state ministry of health budgets through the state malaria control programme.

In the states above, a comparative analysis will be made between the 4 states and the cumulative and individual expenditures analyzed in relation to the malaria indicators, to determine how malaria control will be affected in the absence of these funds and how they will affect sustainability in the context of the states.

3.3. Target and Study Populations

The study population was the State Malaria Control Programmes (SMCPs) of the 4 states of Adamawa, Gombe, Zamfara and Kano in the NE and NW zones of Nigeria, where three of the states enjoy the support of the USAID, DFID and World Bank malaria programmes.

3.4. Type of Data

The data collected was both quantitative and qualitative. Malaria mortality and morbidity figures for the states were obtained from the states. However, getting expenditure data on LLINs, IRS, capacity building and drugs (ACTs and SPs) by the states and the different donors was really challenging as most of the donors were not ready to share the information which they consider as classified. Qualitative data through Focus Group Discussion with malaria community members and In-depth interviews with the key officials involved in malaria programme management for the state ministries of health and the donor organizations was collected.

3.5. Data Collection

3.5.1. *Quantitative data*

The methodology was descriptive studies with quantitative secondary data collection on malaria mortality and morbidity from the four states of Adamawa, Gombe, Kano and Zamfara in Nigeria. Expenditure on malaria activities incurred by the State programmes and donors on LLINs, SPs, ACTs, IRS and capacity building was planned to be part of the quantitative data to be collected. This was however, not made available by the states and the donor programmes. The key success points of the donor programmes were studied using a desk review of their reports within the period of support.

3.5.2. *Qualitative data*

The methodology also involved qualitative approach through conducting key informant interviews which were structured based on the conceptual framework which explains the interaction between the malaria programme and the population health. Representatives of the malaria programme - Directors of Public Health and the state malaria programme managers of the ministries of health of the 4 states, State Programme managers of the GF, DFID, USAID, WB Booster Project, and their country Directors were interviewed. The interviews focused on the magnitude of malaria, other sources of funding, state priorities, alternative funding strategies, success factors and capacity building of staff of the donor organizations and the state ministries of health towards achieving key implementation successes and better outcomes in malaria control.

On the part of the community, Focus group discussions (FGDs) were also done with community members who are the direct beneficiaries of the interventions in Kano state. The choice of FGDs was to get opinions, beliefs, attitudes and practices of the community towards malaria as well as to identify their needs and priorities. It will also help to understand how they will contribute to the success and sustainability of the programme within their local cultural settings.

The choice of Kano was based on the fact that there are two programmes supporting malaria control in the state, and the knowledge and attitudes of the community members in terms of utilization of the services is important in order to identify which activities achieve maximum outcome and thus need to be sustained. Traditional healers, household members, pregnant women and mothers of children under 5 years were the targets of the FGDs. The number of participants was 12 comprising 10 males and 2 females. All were Muslims from the predominant Hausa and Fulani tribes. Their age ranged from 35 to 50 years and some of them were involved in the net distribution activities while some are civil servants working under different ministries of the Kano state government. The topic was explained to the participants and their informed consent sought while assuring them that all information will be kept confidential.

Issues covered by the discussions in the FGDs included:

1. The knowledge of the communities about malaria,
2. Their involvement in planning and sustaining its control.
3. Whether the bed nets, drugs, and other interventions are correctly utilized and beneficial to them
4. How can they contribute as a community towards sustaining malaria control activities
5. What are their priority areas and what they consider will lead to successful malaria control
6. Will they be ready to use their resources in case the support stops and if not what alternatives can they use?

The proceedings of the FGDs were recorded and the main points from each question were written and useful quotes from participants documented. The data were then analysed based on the questions, where consensus, similar or contrasting views were made. The outcome of the FGDs was then be used to structure the Key Informant Interviews (KIIs).

The data from the study were analysed and key success factors for the different programmes identified and alternative financing strategies based on the contextual differences of the state also assessed. The findings from the study were

used to proffer suggestions on how to formulate strategies to sustain malaria control within the short, medium and long term ranges.

CHAPTER IV RESULTS AND DISCUSSIONS

4.1. Quantitative Data

The quantitative data for this study was collected in March 2013 and involved malaria morbidity and mortality figures and where available budgets by the states for malaria. Figures on Expenditure for malaria by the states and donor organizations were difficult to get as most of them required more than a thesis introductory letter to release the figures. The data is summarized below.

4.1.1. Adamawa State

Table 4 Malaria Mortality and Morbidity in Adamawa State (2007-2011)

S/N	CATEGORY	YEAR				
		2007	2008	2009	2010	2011
1	Children under 5 yrs.	23909	19069	6206	7768	2745
2	Pregnant Women	2558	3100	444	1417	501
3	Others	5153	27105	10395	12948	5145
4	Deaths	213	105	69	121	16

Source: State Malaria Control Programme, Ministry of Health, Adamawa State 2013.

Figure 5 Malaria morbidity for Adamawa State (2007 - 2011)

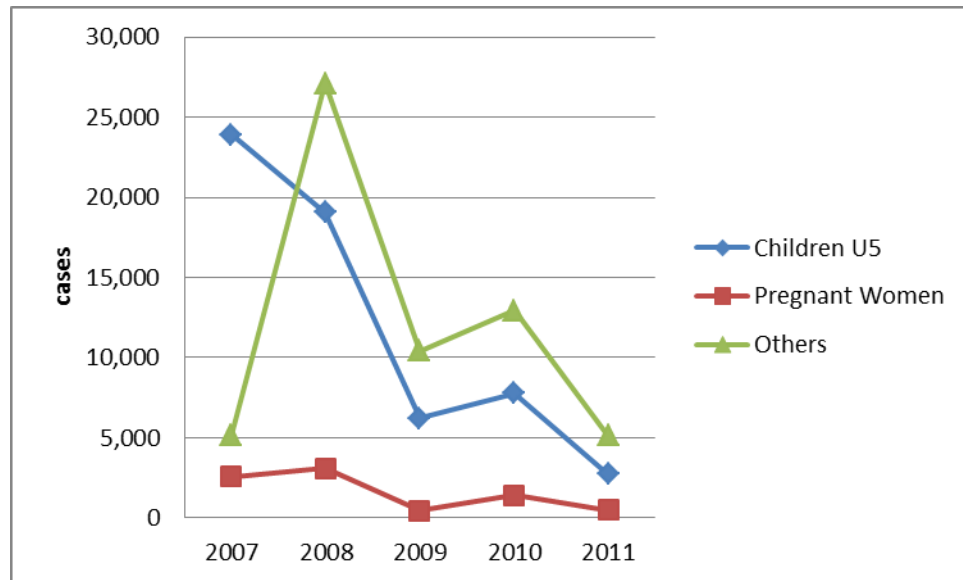
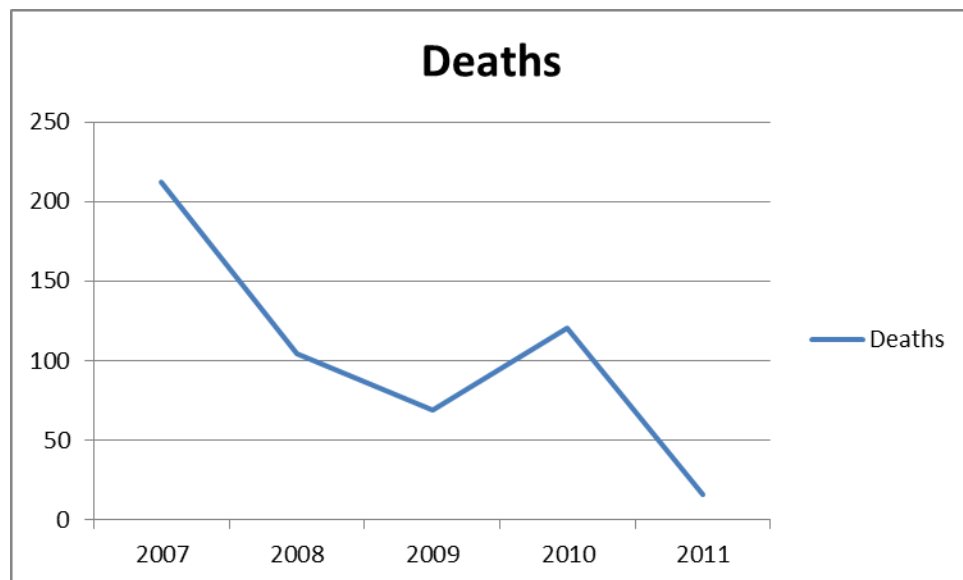


Figure 6 Malaria Mortality for Adamawa State (Cumulative 2007 - 2011)



The trend in mortality in Adamawa state from the available data was on the decline between 2007 and 2009 before increasing in 2010. A very sharp decline was seen in 2011. A similar trend for the morbidity was seen for the children under 5 years and pregnant women. The morbidity for age 5 years and above was the highest category, increasing and dropping sharply between 2007 and 2009.

Even though the state was not enjoying donor support, there was an interesting trend of decrease in mortality and morbidity in the state despite the non-release of specific funds budgeted for malaria. This meant malaria activities were only financed through the general allocation the ministry earmarked for health programs generally and therefore few activities would be implemented. This can be explained partly on the impact of universal distribution of long lasting insecticidal nets in the state by the National Malaria Control Programme and SPs for pregnant women within the period of analysis. However, the quality of the data reporting system could not be established, so data has to be treated with caution.

The expenditure figures by the Adamawa state ministry of health for malaria were not available as only budgeted amounts for 2010 to 2012 fiscal years were given. There was no corresponding release of the amounts budgeted to warrant any expenditure. Therefore, no analysis can be made as to the trend of expenditure by the ministry over the years.

Table 5 Budget for Malaria, Adamawa State Nigeria

Year	Amount Budgeted (Naira)	Amount Released	Amount Expended
2010	30 million	NIL	NIL
2011	30 million	NIL	NIL
2012	25 million	NIL	NIL

Source: Adamawa State Malaria Control Programme, Yola, Nigeria. 2013

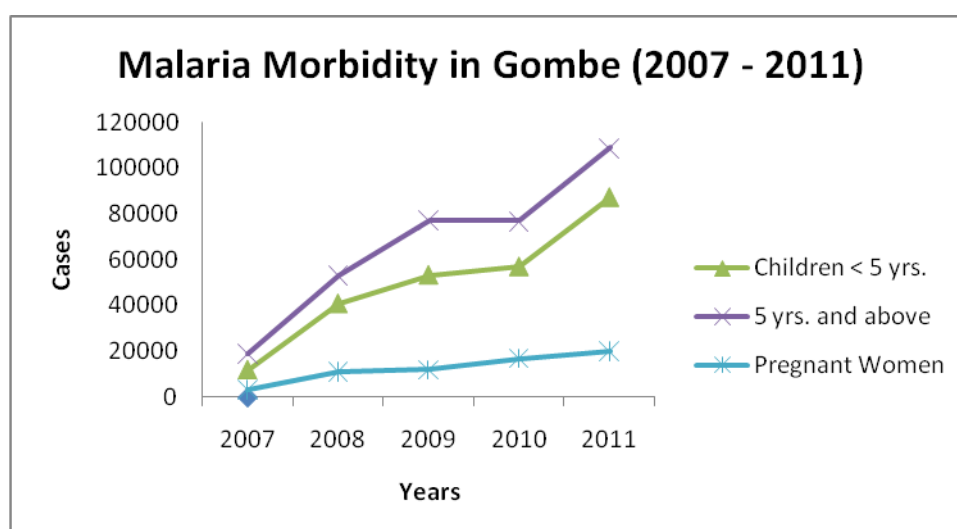
4.1.2. Gombe State

Table 6 Malaria Morbidity trend in Gombe State (2007 – 2011)

S/N	CATEGORY	2007	2008	2009	2010	2011
1	Children < 5 years	11,833	40,877	53,427	57,100	87,484
2	5 years and above	18,852	53,143	77,260	76,843	108,860
3	Pregnant Women	2,969	10,860	11,846	16,712	19,960

Source: Gombe State World Bank Malaria Booster Programme, Ministry of Health. 2013

Figure 7 Trend of malaria morbidity in Gombe (2007 - 2011)



The trend in mortality in Gombe state appears to be increasing over the years for all categories of patients even though national figures show a decrease due to the use of diagnostics (RDTs) and the treatment of all fever cases as malaria. This was explained to be so due to the increased capacity of health workers in the state to diagnose and treat malaria cases as a result of the training they received on case management of malaria. There was also increased awareness from the public leading to increase in patronage of public hospitals and better reporting of malaria cases by the Disease Surveillance and Notification Office in the ministry of health. All the above factors were responsible for the increased reporting of malaria morbidity in the state despite the support by the World Bank Booster Project.

4.1.3. Kano State

Table 7 Malaria Mortality and Morbidity for Children U-5yrs in Kano

Year	Reported Cases of Malaria in U-5s	Deaths
2006	108,247	73
2007	147,374	208
2008	194,050	381
2009	197,178	231

Source: Kano State Malaria Control Programme Annual Operational Plan 2011.

Table 8 Malaria Mortality and Morbidity for Pregnant Women in Kano

Year	Reported Cases of Malaria in Pregnancy	Number of deaths
2006	48,311	29
2007	37,144	37
2008	49,230	70
2009	125,169	106

Source: Kano State Malaria Control Programme Annual Operational Plan 2011.

The trend in Kano state also shows a steady increase in under-5 morbidity from 2006 to 2009. In the case of pregnant women, a decrease was seen between 2006 and 2007 but with a more than double between 2008 and 2009.

The figures did not capture any impact of the World Bank Booster Project and DFID support as most of the activities started in late 2008 and 2009. The mass distribution of treated nets was done in 2009 and the piloted indoor residual spray in 2010. As in Gombe state, there is an essential problem in the quality of the malaria data with the malaria programs.

Figure 8 Malaria Morbidity for U-5 and Pregnant Women in Kano

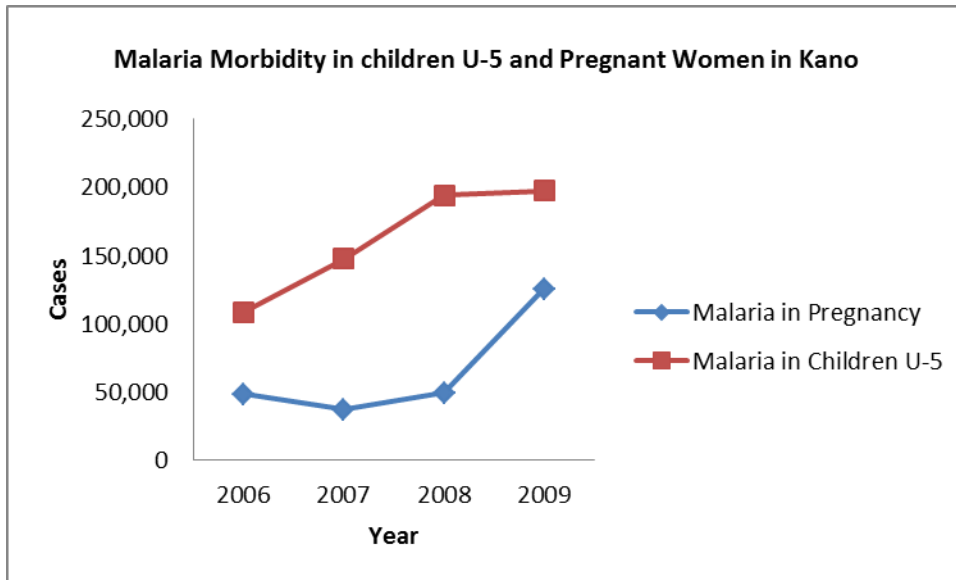
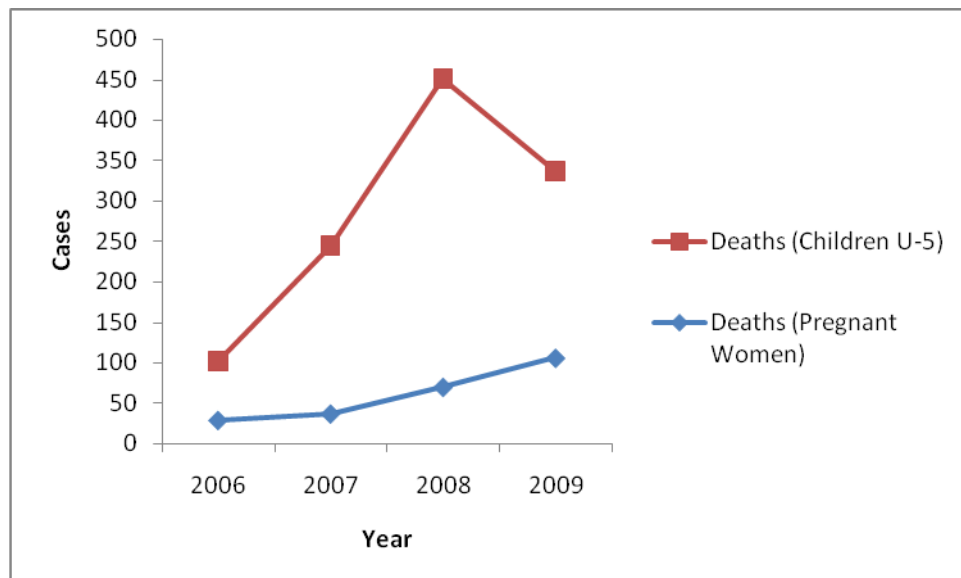


Figure 9 Malaria Mortality for U-5 and Pregnant Women in Kano



The mortality rate for the children under 5 years in Kano was higher than the one for pregnant women.

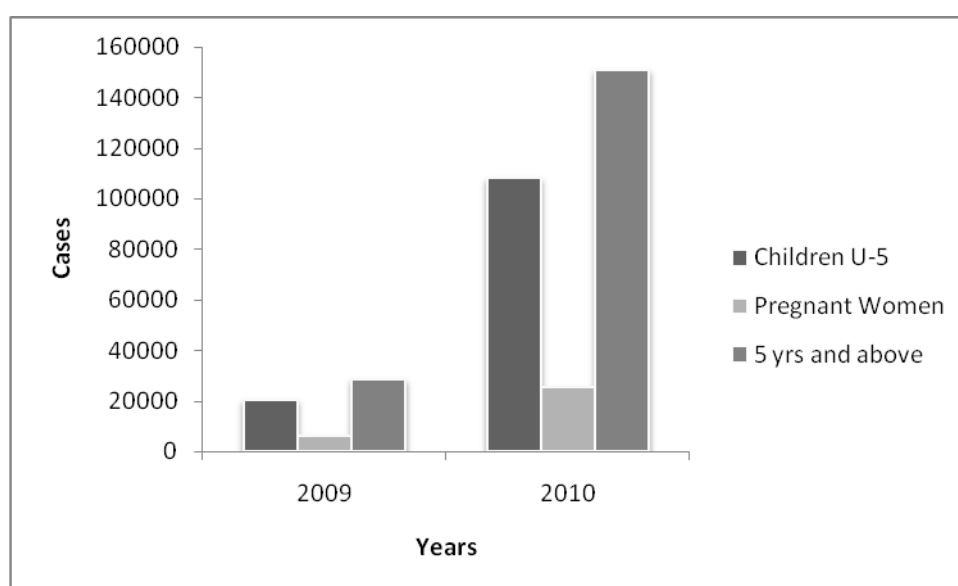
4.1.4. Zamfara State

Table 9 Mortality and Morbidity for Malaria in Zamfara

Year	Cases				Deaths
	< 5 years	> 5 years	Pregnant Women	Total	
2009	20297	28422	6114	54833	179
2010	108005	150906	25311	284222	790

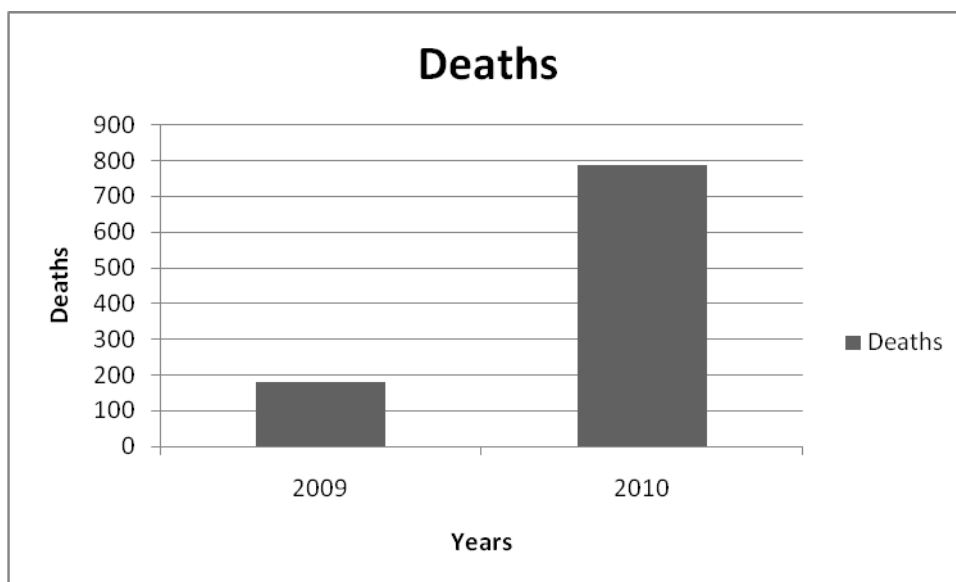
Source: M&E Unit, Zamfara State Ministry of Health. 2013

Figure 10 Malaria Morbidity in Zamfara



The data got from Zamfara state for the two years 2009 and 2010 shows an increase in categories of all malaria cases. The highest cases being children 5 years and above followed by children under 5 years of age. The cases of pregnant women were the least recorded. The USAID supported Malaria Action Programme for States (MAPS) in the state started in 2010 and the available data covers up to 2010, therefore the project impact in terms of reducing malaria burden will not be seen that soon.

Figure11 Malaria mortality in Zamfara



Like the malaria cases in the state, the cumulative deaths recorded from malaria increased to more than 3 times from 2009 to 2010. This may be related to the stock-out of antimalarial drugs and lack of inadequate support for malaria control activities in the state.

The common trend among all the four states in terms of malaria mortality and morbidity is an increasing trend over the years in spite of the donor support or lack of it. Children under 5 years in all the states have higher morbidity rates than pregnant women. However, the most authentic data available was from the NDHS 2008 which highlighted comparison across the states. Impact of the donor support across the four states based on the quantitative data obtained from them cannot be established as the data quality has to be authenticated. Additionally, there wasn't data on the expenditures by the different states and the donors on malaria activities, making it difficult to quantify and compare the impact of support between donor-supported states and the non-supported state.

The major observation from all the four states was the inconsistency in the mortality and morbidity data bringing into question the validity of the data. The states with donor support were supposed to have shown better results in the morbidity and mortality of malaria but did not. This means there are fundamental flaws in the data capture and analysis. This underscores the urgent need to improve data quality in all the states. Despite these, the data obtained will have very important policy considerations in planning for the sustainability of malaria programmes across the states.

4.2. Qualitative Data

4.2.1. Focus Group Discussion

Focus group discussion was done in Kano State with community members in order to assess their knowledge on malaria and to identify the roles they will play towards contributing to sustaining malaria control in the state. Their priorities were identified and the extent of their involvement in malaria programme planning, as well as the impact of capacity building for their community members. The discussions were structured around the conceptual framework and the research questions and objectives of the study. This is to establish a link between the malaria programme, the community priorities and benefits, and to also identify contributions and key strategies the communities will adopt to help sustain malaria control.

The Focus Group Discussions (FGDs) centered around five thematic areas. These are:

- Knowledge, Attitudes and Practices of the community about Malaria
- Community Involvement and Contribution in Malaria Control
- Priorities and Benefits the communities derive from the malaria programme
- Impact of capacity building on the community

The criteria for inclusion into the FGDs included participation in previous malaria activities, pregnant women attending ANC, mothers of children under 5 years and heads of households. The purpose of the FGDs was explained to the respondents and for ethical reasons their consent sought for recording their voices. Key points from each of the thematic group were then summarized.

FOCUS GROUP DISCUSSION SUMMARY		
Topic:	Group description: ADULTS 35-50 Yrs.	City/Community: KANO/BECHI
KEY FINDINGS		
<p>A. KNOWLEDGE, ATTITUDES AND PRACTICES</p> <ol style="list-style-type: none"> 1. Malaria is a fever caused by mosquitoes, affects children mostly 2. People often mistake it for common cold or jaundice 3. Poor sanitation and blocked drainages bring more mosquitoes and increase in malaria incidences 4. Wrong medications given to people with malaria due to ignorance. 5. Communities need to be enlightened on the causes, signs and symptoms of malaria 6. Use of LLINs, IRS and Outdoor spray and proper environmental management are important preventive measures against malaria. 		
<p>Quotes:</p> <ol style="list-style-type: none"> 1. “Ignorance leads community members to attribute malaria fever to demons and thereby using traditional herbs to treat it.” <p>“Children should be taken to the hospital promptly if any signs of fever are observed in them.”</p>		
<p>B. COMMUNITY INVOLVEMENT AND CONTRIBUTIONS IN MALARIA CONTROL</p> <ol style="list-style-type: none"> 1. Community members to buy LLINs and use them to protect themselves 		

2. Community leaders help in public enlightenment and mobilization
3. Communities are involved in some aspects of malaria control e.g. mass distribution of insecticide treated nets.
4. Formation of community self-help committees to participate in environmental sanitation.
5. Visiting the hospitals on time when people get fever
6. Government, NGOs and donors should identify that traditional rulers have a role to play in the community (public enlightenment and mobilization).
7. Involvement of philanthropists to buy and donate malaria drugs and treated nets (LLINs).

Quotes:

1. “Traditional healers should be honest enough to advice and send people to the hospital as they don’t have the capacity to treat malaria with traditional herbs”.

C. PRIORITIES AND BENEFITS DERIVED FROM THE PROGRAMME

1. Major priorities of the community are provision of LLINs followed by IRS and then Environmental sanitation
2. Benefits derived by the communities included economic (reduction in out of pocket expenses), more time for children to attend school and health improvement for the community members.

Quotes:

1. “Communities should realize that one child infected with malaria will have

direct and indirect effects on other community members, therefore should be treated quickly”.

D. IMPACT OF CAPACITY BUILDING

1. Training is the basis of community advancement and therefore very important to all communities
2. Training of community volunteers on early identification of malaria and home management will reduce the incidence of malaria in the communities.

Quotes:

1. “Ignorance causes all the problems associated with non-compliance and non-treatment of malaria cases”.

From the outcome of the FGDs, the community members seem to be well aware of the effect of malaria as an economic social and health burden to their communities. They also have a good grasp of the basic preventive measures against malaria through the use of treated bed nets (LLINs), indoor and outdoor spray and improving sanitation through cleaning drainages and disposing of stagnant waters all of which are breed mosquitoes. However, there is need for additional public enlightenment for the communities on the causes, signs and symptoms of malaria to effectively identify and manage it. They also have positive attitudes towards controlling malaria in their communities and their practices attested to that.

In terms of community involvement and participation, the findings are that the communities have been playing active roles in the areas of mobilization and distribution of nets. They however, need to be more engaged by the government and donor organizations in more activities. Since the nets distributed during mass distribution campaigns would not cover all community members, some members of the community buy more for use by their families. The high level of poverty though coupled with the extended family structure, may be factors militating against buying

additional nets for other family members, who did not get during either mass distribution or the ones given in health facilities for pregnant women and children under 5 years of age.

The communities are happy with the benefits they derive from the support they receive from the malaria programmes especially through LLINs provision and Indoor Residual Spray (IRS) which they see as their major priorities. Some of the benefits they enumerated included reduction in out-of-pocket expenses, improvement of health of the community members and more time for their children to attend school.

Training of volunteers from the community on simple management of malaria at home and referral of serious cases to the hospitals, are seen as part of building the capacity of the community members which will translate to better health and improve their economic status.

4.2.2. *In-depth Interviews with Key Informants*

In the four study states - Adamawa, Gombe, Kano and Zamfara - interviews were conducted with the key informants of the malaria programmes in the ministries of health and the donor programmes supporting malaria control activities. The state malaria managers and the Directors of public health or Primary Health Care in the four states were interviewed. The chief of party of the USAID supported MAPS project and the National Program Director of the DFID supported SuNMaP programme were also interviewed at the national level. The state programme managers of World Bank MBP in Gombe and Kano states were the key informants for the MBP.

In Zamfara State however, the state was not ready to release any details of expenditure even after presenting the thesis letter of introduction. The interview questions just as the FGD questions were meant to get information on the successes of the malaria programmes in the state, what the states priorities are and strategies to

sustain malaria control in the absence of donor funding. The key findings were summarized for each state.

4.2.3. *Adamawa State Interviews: Summary of Key Findings*

- 1) Malaria has been a leading cause of mortality, morbidity and economic loss to the citizens and the country. It has been estimated that over N130 billion is lost annually in terms of treatment costs, loss of man hours and absenteeism from school. How serious is the problem in this state?

- Risk of getting malaria is very high in the state
- Almost all people are vulnerable

- 2) What activities does the state support as part of the malaria control efforts?

- The state supports preventive measures – distribution of LLINs and SPs to pregnant mothers and children under 5 years of age
- Also supports Curative measures – Provision of free ACTs for all age groups

- 3) What are the success factors and lessons learnt so far in terms of the support the state gives?

- Willingness of people to sleep under the LLINs distributed
- Use of ACTs as anti-malarial drugs

- 4) What preventive measures (provision of treated bed nets, SPs and IRS) do you think are most relevant to the state and likely to be sustained in the long run? Can they be ranked in order of importance?

- Provision of long lasting insecticidal treated nets
- Provision of SPs for pregnant women for protection against malaria
- Indoor Residual Spray

5) Are there other sources of funding supplementing the state expenditure on malaria?

- Recently the state has started getting the support of partners
- Global Fund – through Society for Family Health (SFH) and Association for Reproductive and Family Health (ARFH)
- UNICEF
- Federal Ministry of Health (FMOH) – through the National Malaria Control Program

6) Are other stakeholders and the communities involved in planning for malaria control activities? (E.g. M&E, Distribution of LLINs and SPs etc)

- Stakeholders are involved in the planning activities at different levels – e.g.in community mobilization, distribution of nets and trainings of community volunteers on home management of malaria.
- NGOs, CBOs, Traditional and Religious leaders are all involved in malaria control

7) Funding malaria activities requires resources on a sustained level, considering the fact that the states don't adequately budget for malaria due to resource constraints, what alternative ways (in order of ranking) are open to the state to augment what is currently available

- Securing support from the local NGOs
- Development Partners
- Community involvement – in procurement and use of LLINs and SPs and environmental management.

8) Donors and other international NGOs are now in the forefront in funding malaria activities in the country. What do you see as financial and non-financial strategies for continuity of the malaria control activities should donors withdraw or decrease their support?

- Advocacy to the state Government to take up funding of malaria programme fully
- Leverage the support of communities, individuals, NGOs and CBOs

9) States are different in terms of malaria burden and priorities, what are the major priorities of this state in terms of malaria control activities?

- Procurement and distribution of ACTs and SPs to Children under 5 years and Pregnant women

10) How does the state/programme harmonize its activities with that of other donors or NGOs also supporting malaria control in the state?

- Harmonization of activities done through partner forum meetings – Preparation of malaria Annual Operational Plan

11) What is the impact of capacity building in relation to malaria control in the state?

- Well trained RBM officers at state, LGA and Health Facility levels
- Training on case management of malaria, use of RDTs and LLINs is improving reporting, investigation and treatment of malaria.

4.2.4. Gombe State Interviews - Key findings

- 1) Malaria has been a leading cause of mortality, morbidity and economic loss to the citizens and the country. It has been estimated that over N130 billion is lost annually in terms of treatment costs, loss of man hours and absenteeism from school. How serious is the problem in this state?

- Malaria morbidity is high in the state according to national figures
- High out of pocket expenses meaning economic loss to the state – no quantifiable figure for the state

- 2) What activities does the state support as part of the malaria control efforts?

- Integrated Vector Management – LLINs distribution, IRS, Environmental management
- Case Management – supply of antimalarial drugs (ACTs) – Procurement and distribution and Capacity building of all levels of health workers (Doctors, Nurses, Pharmacists, Lab. Scientists, CHEWs
- Provision of SPs to pregnant women for protection against malaria
- ACSM activities – community dialogues and sensitization, sponsorship of radio and television jingles and drama and printing of IEC materials (leaflets, flyers etc)
- Monitoring and Evaluation – checks progress of implementation
- Procurement and Supply Management activities – support to procurement of malaria commodities and their transportation logistics within the state.

- 3) What are the success factors and lessons learnt so far in terms of the support the state/programme gives?

Success Factors

- Involvement of policy makers and communities through religious and traditional rulers in malaria programme planning and implementation
- Acceptance of the programme by the people
- Funding support from the state
- Capacity building of health workers at all levels

Lessons Learnt

- Involvement of all stakeholders necessary for the success of the malaria programme
- Harmonization of activities with other partners avoids duplication of efforts and misuse of resources

- 4) What preventive measures (provision of treated bed nets, SPs and IRS) do you think are most relevant to the state and likely to be sustained in the long run? Can they be ranked in order of importance?

- Use of LLINs to reduce the burden of malaria
- IRS in selected communities with high malaria prevalence based on surveillance indicators
- SPs for prevention of malaria in pregnancy

- 5) Are there other sources of funding supplementing the state expenditure on malaria?

- The state is supported by other donors in some aspects of malaria control
- SHF supports the private sector by provision of ACTs at subsidized rates
- MDGs supports some LGAs with SPs and ACTs
- SHI gives logistic and training support to LGA staff
- NIFA (Nigeria Interfaith Association) helps in community dialogues

- 6) Are other stakeholders and the communities involved in planning for malaria control activities? (Eg M&E, Distribution of LLINs and SPs etc)

- Communities, SHF, SHI and NIFA are all involved in one way or the other in the planning process

- 7) Funding malaria activities requires resources on a sustained level, considering the fact that the states don't adequately budget for malaria due to resource constraints, what alternative ways (in order of ranking) are open to the state to augment what is currently available

Alternative Strategies:

- Explore community directed intervention – Training of community volunteers on simple malaria diagnosis and treatment to sustain coverage.
- Use of BCC activities to increase demand and use of health care services

- 8) Donors and other international NGOs are now in the forefront in funding malaria activities in the country. What do you see as financial and non-financial strategies for continuity of the malaria control activities should donors withdraw or decrease their support?

- Private Sector Participation – Ashaka Cement Company in the state to be engaged to support even a few LGAs with malaria drugs and LLINs as part of their CSR.
- Involvement of local NGOs to support malaria activities in the state

- 9) States are different in terms of malaria burden and priorities, what are the major priorities of this state in terms of malaria control activities?

- Provision of LLINs to increase their usage and coverage
- Environmental management through supporting proper sanitation activities

10) How does the state harmonize its activities with that of other donors or NGOs also supporting malaria control in the state?

- Harmonization done through partner forum meetings in the development of state malaria work plan.

11) What is the impact of capacity building in relation to malaria control in the state?

- Use of Chloroquine tablets for treatment of malaria discouraged and trend of ACTs prescription increased.
- Health Workers trained from the level of the ministry to the health facilities on M&E, Case management and use of RDTs.
- Availability of trained community volunteers on IRS and distribution of malaria drugs.
- Improved reporting of malaria cases due to correct use of M&E reporting tools.

4.2.5. Kano State Interviews – Key Findings

1) Malaria has been a leading cause of mortality, morbidity and economic loss to the citizens and the country. It has been estimated that over N130 billion is lost annually in terms of treatment costs, loss of man hours and absenteeism from school. How serious is the problem in this state?

- Problems of malaria in Kano similar with other northern states
- Malaria accounts for 70% of hospital attendance in the state
- Malaria is a serious problem in the state due to the fact that a large proportion of the population lives below poverty line, and is unable to afford appropriate healthcare services.

2) What activities does the state support as part of the malaria control efforts?

- The state and partners support provision of free drugs (antimalarial drugs) for the treatment of malaria. This is focused on patients accessing care in public health facilities in the state.
- Provision of Long Lasting Insecticidal Nets free to be distributed to pregnant women attending ANC services in public health facilities across the state.
- Provision of capacity building support to health workers on diagnosis and treatment of malaria.
- Supports environmental management through the ministry of Environment in the state

3) What are the success factors and lessons learnt so far in terms of the support the state gives?

Success Factors

- Universal distribution of LLINs leading to decrease in malaria cases and hospital attendance
- IRS piloted in one LGA – survey report from the LGA indicated a reduction of malaria cases in the LGA
- Provision of free ACTs to all public health facilities and SPs for pregnant women in most HFs
- There is increasing awareness among stakeholders on the malaria burden.
- Interest have also increased on ownership and use of treated bed nets
- Improvement on case management of malaria, with paradigm shift towards parasite based diagnosis (through the use of RDTs)

Lessons Learnt

- Vector Control and active case management drastically reduce malaria cases
- Sufficient funding of malaria programmes reduces malaria cases.

- 4) What preventive measures (provision of treated bed nets, SPs and IRS) do you think are most relevant to the state and likely to be sustained in the long run? Can they be ranked in order of importance?

- Provision of long lasting insecticidal treated nets (better and easier to sustain)
- Provision of SPs for pregnant women for protection against malaria
- Environmental Management
- Indoor Residual Spray

- 5) Are there other sources of funding supplementing the state expenditure on malaria?

- DFID funded Support to National Malaria Programme (SuNMaP) – supports with routine distribution of LLINs and SPs to health facilities

- 6) Are other stakeholders and the communities involved in planning for malaria control activities? (Eg M&E, Distribution of LLINs and SPs etc)

- Stakeholders are involved in the planning activities at different levels – e.g. during net distribution campaigns,
- NGOs, CBOs, Traditional and Religious leaders are all involved in malaria control in the state
- Community members are involved in the distribution of SPs and also trained as community resource persons

- 7) Funding malaria activities requires resources on a sustained level, considering the fact that the states don't adequately budget for malaria due to resource constraints, what alternative ways (in order of ranking) are open to the state to augment what is currently available

- Kano State has opted out of the World Bank Booster arrangement and ready to fund malaria fully using its resources
- Partnering with other partners and NGOs
- Canvassing the support of Philanthropic organizations
- Encouraging participation of private sector, providing tax holidays/waivers for manufacturers of antimalarial commodities would go a long way in ensuring that the commodities are accessible and affordable.

8) Donors and other international NGOs are now in the forefront in funding malaria activities in the country. What do you see as financial and non-financial strategies for continuity of the malaria control activities should donors withdraw or decrease their support?

- State to take ownership of the malaria programme using its own available resources
- State should not depend on donor support only but continue to look for other viable strategies to sustain the programme
- Ensure that no duplication of activities happen so that only relevant activities are budgeted for by the state
- There is a need to strengthen the leadership structures in the country to reduce wastage of resources.
- Donors could focus on interventions that support the state to manage its resources effectively and efficiently, reduce corruption and improve service delivery.

9) States are different in terms of malaria burden and priorities, what are the major priorities of this state in terms of malaria control activities?

- Procurement and distribution of ACTs, SPs to Children under 5 years and pregnant women and RDTs to HFs for malaria diagnosis.
- Environmental Management – larviciding and aerial spray.

11) How does the state/programme harmonize its activities with that of other donors or NGOs also supporting malaria control in the state?

- Efforts are currently being made by program partners to improve harmonization and coordination around a single plan for malaria intervention in the state.
- There has been increased support for the development of a single state led costed malaria control operational plan with by in from both state and partners.

11) What is the impact of capacity building in relation to malaria control in the state?

- Capacity building for health workers has helped to reverse the trend in malarial treatment – switching from Chloroquine to ACTs thereby improving the management of malaria.
- The training on RDTs, Malaria in Pregnancy and Case management given to health workers is a new development that will improve malaria control in the state.

4.2.6. *Zamfara State Interviews – Key Findings*

- 1) Malaria has been a leading cause of mortality, morbidity and economic loss to the citizens and the country. It has been estimated that over N130 billion is lost annually in terms of treatment costs, loss of man hours and absenteeism from school. How serious is the problem in this state?

- Big issue in the state
- Malaria mortality in the state very high

- 2) What activities does the state support as part of the malaria control activities?

- Provision of ACTs, SPs to health facilities
- Case management training
- Social mobilization

- 3) What are the success factors and lessons learnt so far in terms of the support the state/programme gives?

Success Factors

- LLINs distribution
- SPs and ACTs

Lessons Learnt

- Harmonization – Development of state malaria AoP

- 4) What preventive measures (provision of treated bed nets, SPs and IRS) do you think are most relevant to the state and likely to be sustained in the long run? Can they be ranked in order of importance?

- LLINs
- SPs
- IRS

5) Are there other sources of funding supplementing the state expenditure on malaria?

- Yes – MAPs funded by USAID

6) Are other stakeholders and the communities involved in planning for malaria control activities? (Eg M&E, Distribution of LLINs and SPs etc)

- Yes – Communities, partner organizations

7) Funding malaria activities requires resources on a sustained level, considering the fact that the states don't adequately budget for malaria due to resource constraints, what alternative ways (in order of ranking) are open to the state to augment what is currently available

Alternative Strategies:

- Private partnerships
- Community contribution – Community Health Insurance
- Philanthropists

8) Donors and other international NGOs are now in the forefront in funding malaria activities in the country. What do you see as financial and non-financial strategies for continuity of the malaria control activities should donors withdraw or decrease their support?

- Govt. policy to subsidize production of nets and antimalarial drugs
- HR development – building capacity of health workers
- Local Production of nets and malaria drugs

9) States are different in terms of malaria burden and priorities, what are the major priorities of this state in terms of malaria control activities?

- Prevention – LLINs distribution and SPs
- Treatment – ACTs, Capacity building of Health staff on case management
- Environmental management

10) How does the state harmonize its activities with that of other donors or NGOs also supporting malaria control in the state?

- Meeting between the ministry of health and partners supporting malaria
- Through the development of the annual operational plan for malaria

11) What is the impact of capacity building in relation to malaria control in the state?

- Improvement in case management – use of ACTs instead of Chloroquine for malaria treatment
- Better data reporting on malaria
- Better and enlightened public on use of LLINs, ACTs and patronage of hospitals

The key findings from the in-depth interviews in the four states were grouped into 8 themes in order to answer the research questions and the objectives. The analysis across the four states was done as follows:

A. Malaria as a health burden.

Malaria has been identified as a major source of mortality and morbidity in all the states studied. It is seen as a health burden that brings about economic loss to the states. Poverty however, has a role in limiting access to malaria drugs and commodities by the poor, as these are given in limited quantities free in public facilities only. Gombe and Kano are states with more commercial activities and the purchasing power of an average person in the two states will be higher when compared with Zamfara and Adamawa states.

B. Malaria Activities Supported by the states and their relevance to them.

The common activities supported by all the states have to do with LLINs distribution, provision of free ACTs and SPs to public facilities. IRS although a relevant strategy, is considered to be less cost effective as compared to provision of LLINs and ACTs and is only piloted in a few LGAs in two of the states – Gombe and Kano. Capacity building activities are also supported in all the states but with more emphasis on the donor supported states. Other activities like ACSM are mainly supported in the states that are donor funded.

The table below shows the key activities implemented by the states and the donors supporting them.

Table 10 Key activities implemented by the states and donor organizations

Activities implemented by the states	Activities implemented by the donors
1. Provision of free ACTs for malaria treatment in public facilities	1. Provision of LLINs for campaigns and routine distributions

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- | | |
|---|---|
| <ol style="list-style-type: none"> 2. Logistic support activities for LLINs distribution (transportation, warehousing) 3. Surveillance activities (All LGAs) 4. Equipping of Referral centres with drugs and personnel for treatment of severe malaria cases 5. Environmental management through the state environmental protection agencies (SEPA) 6. Provision of SPs for pregnant women through ANC facilities and Role Model Mothers (RMM) 7. Laboratory services (microscopic diagnosis of malaria) 8. Social Mobilization activities | <ol style="list-style-type: none"> 2. Provision of ACTs for treatment of malaria (fill in the state gaps) 3. Provision of SPs for IPT 4. Capacity building trainings for health workers, line ministries officials, RMMs and CCGs 5. Provision of IEC materials on malaria (Posters, Leaflets, Radio and TV jingles) 6. Training on the use of RDTs and technical support 7. Sponsor the development of malaria annual operational plans 8. Sponsor operational research on malaria issues 9. Technical support on malaria data collection and M&E activities. 10. IRS support in piloted areas in some states |
|---|---|
-

The key activities that will be affected most and states need to look for alternative funding strategies to sustain if there is decrease in donor funding or withdrawal will include provision of LLINs for routine and universal distribution, capacity building activities for health workers, operational research and IEC materials.

C. Success Factors

The success factors identified in the four states are:

- a. Involvement of policy makers and communities in the planning and implementation of the malaria programmes.

- b. Acceptance of the malaria programme by the community members
- c. Capacity building extended to the staff of the ministry of health, health facilities and other relevant ministries.
- d. Willingness of the communities to use and continue sleeping under the long lasting insecticide treated bed nets
- e. Use of the new ACTs as first line antimalarial drugs in place of the older and resistant chloroquine.
- f. Universal and routine distribution of LLINs
- g. Provision of free ACTs and SPs to health facilities
- h. Indoor residual spray in some selected places

Even though the success factors differ from state to state, in all the four states interestingly, the distribution of LLINs - either in public facilities for pregnant women and children under 5 years of age or the mass distribution campaign covering every household – and active stakeholder involvement and participation were seen as common and major success factors for the malaria programmes. In Gombe unlike other states, the active involvement of policy makers in supporting the programme and the acceptance of the programme activities by the public were seen to be additional success factors not mentioned in other states. Kano state sees IRS as a success factor even though it was piloted in selected wards of one LGA.

D. Funding Alternatives

Across the four states, international NGOs, CBOs, bilateral and multilateral donors are the additional sources of funding for the states malaria programmes. In Adamawa state, a new programme Association for Reproductive and Family Health currently supports malaria activities in the state. Additional sources of funding are available to the states from the Local Government Area Councils, Millennium Development Goals fund and the Federal Ministry of Health through the National Malaria Control Programme.

The NMCP supports all the states with additional ACTs and SPs and capacity building for the health staff. This is a major source of alternative funding for malaria in all the states.

E. Priorities

In all the four states, the common priorities identified include the procurement and distribution of LLINs, free distribution of ACTs and SPs all through the public facilities. Effective Environmental management and use of IRS were also seen as priorities coming after nets and drugs. Kano state withdrew from the World Bank MBP partnership because the government wants to look at possibilities of financing all its programmes from its budget without resorting to loans. Whether this is practical for the state at the moment needs to be seen. However, this they consider as part of their priorities and if it works; then they have taken a step towards planning for their malaria programme sustainability within their resource availability.

F. Alternative strategies

The states identified varied strategies for the continuous funding of malaria activities based on the activities they consider as their priorities. Even though the states identified alternative strategies for sustaining their programmes, some of them like strengthening the role of community involvement by training volunteers on simple malaria diagnosis and treatment and efficient use of available resources at their disposal as important alternative strategies common to all for sustaining the malaria programmes.

Based on the relationship of the malaria programmes, their drivers and the health of the population as explained in the framework of this study on the one hand, and the current realities of the states vis-à-vis their priorities and resource availability on the other hand, the following considerations are taken into account to formulate state-specific alternative strategies for sustaining malaria control.

1. Decision by the states on which activities they currently implement and want to sustain based on their needs and resource availability
2. The need to look at other new activities that will replace some of the activities implemented by the donors when they leave
3. Identifying which preventive activities of the malaria control will be done by the communities like change in behaviours that will hamper preventive measures, educational enlightenment, use of other methods of protection like insect repellents, improving sanitation through clearance of mosquito breeding sites, seeking prompt attention in health facilities and complying to treatment schedules when people get malaria. All these actions can be done by the active participation of the community members and not by the trained personnel of the state ministries of health.
4. Activities that the state governments need to support through the state ministries of health like strengthening referral systems in the public facilities, better malaria surveillance especially in states with international borders, while at the same time showing commitment towards equipping the facilities with their basic minimum requirements for malaria drugs and treated bed nets and doing indoor residual spray all within their budgetary allocations. Each state therefore needs to define its burden of illness and plan for it within its needs, priorities and available resources.

With the above considerations in mind, the following strategies can be suggested for the states as alternative strategies for sustaining their malaria control activities.

Adamawa State

Adamawa state being the largest of the 4 states, having no strong economic activities as compared to Gombe and Kano states at the same time having a long

stretch of international border with the Republic of Cameroon and having no donors supporting the implementation of malaria activities means most of the strategies will have to come from the communities and the government.

Malaria Programme

- 1) The state to integrate the malaria programme fully with other health programmes like immunization, nutrition and family planning. This is ensure better and regular funding support from the state health budget as against malaria as a stand-alone programme.
- 2) Build on the willingness of the communities to use LLINs to strengthen community participation and possible contribution towards gradual formation of community health insurance scheme. In some states of the country, there was some resistance on the side of the communities to using the nets due to complaints of heat and itching which was not the case in Adamawa state.
- 3) The state MOH to strengthen data quality through continuous training of M&E officers and giving more attention to increased surveillance along the border areas and other specific areas with high prevalence based on surveillance data.
- 4) Make capacity building programme for the health workers mandatory to better train them on management, treatment and prompt referral of malaria cases to higher levels.

Drivers of the Programme

- 5) Identify and map all NGOs, CBOs in the state and involve them in mobilizing resources, planning and implementation of all malaria programme activities.
- 6) Partner with manufacturers and suppliers of LLINs and ACTs to make them more available and affordable for the general population through some form of incentives and subsidies.

- 7) Mobilize resources through other government ministries like water resources, environment and social welfare towards malaria control in the state.
- 8) Involve trained community care givers and role model mothers in the home management of malaria and distribution of nets and SPs within their communities

Population Health

- 9) Sustain a strong social mobilization activities to enlighten the communities on the benefits of malaria control and the dangers to the society
- 10) Use the village health committees to train community volunteers towards gradual attitudinal change. Cultural taboos hampering use of preventive measures against malaria and using simple preventive measures like use of insect repellents can be addressed through this method.

Gombe State

Gombe state comes next to Kano in terms of vibrant economic activities. The purchasing power of an average citizen in the state is more than that of Adamawa and Zamfara states. It is smaller in size compared with all the 4 states and like Kano has the World Bank MPB. The strategies for this state will involve the combination of government funding, community efforts and the partnership with the private companies within the state.

Malaria Programme

1. Use the existing Community Driven Initiatives programme to continue training of volunteers on simple malaria diagnosis and treatment and distribution of LLINs and SPs.

2. The state to strengthen environmental management policies by appropriate legislation to ensure proper sanitation and constant clearing of mosquito breeding sites.
3. The Ministry of Health in the state to make adequate arrangement for the continuous capacity building of all health workers through on-the - job training and on current trends of malaria management and diagnosis
4. Prioritize the provision of basic stock of ACTs and SPs to all public health facilities while strengthening the surveillance activities

Drivers

1. Partner with the Ashaka Cement Company in the state to increase availability of LLINs and SPs as part of their corporate social responsibility
2. Partner with treated net manufacturers to produce them locally to reduce cost and increase their availability and affordability.
3. Identify and map all available resources relevant to malaria control in the state towards mobilizing them to support the malaria programme
4. Involve all stakeholders that support malaria in the state in planning, implementation and monitoring activities for the sake of harmonization and cost saving.
5. Look at the possibilities of earmarking annual tax levies for all companies operating in the state for malaria control

Population Health

1. Organize and support the communities to start community health insurance schemes.
2. Identify influential people in the communities and make them malaria champions to sensitize and mobilize their communities towards supporting malaria control in the state.

Kano State

Kano state is most populous of all the four states with a very high population density. It is the economic centre of the northern Nigeria and has manufacturing industries. Apart from the support the World Bank and the DFID extends to the state, a number of other organizations also support it in different ways. This makes it more advantageous in terms of resource mobilization as compared to all the other 3 states. The following strategies are suggested for the state:

Malaria Programme

1. Identify philanthropists, NGOs and involve them in supporting malaria activities.
2. Strengthen the surveillance and reporting system of the ministry of health by constant training of staff, especially along the border areas with Niger Republic.
3. Make malaria case management part of the curricula of the schools of Nursing, midwifery and health technology and retraining centre for low and mid-level staff of the primary and secondary health care facilities in the state
4. Liaise with the departments of community health in the Aminu Kano Teaching Hospital and Bayero University Medical College to continuous medical education programmes for senior level medical staff
5. Target densely populated areas for selected IRS building on the success recorded in the piloted wards of a few LGAs

Drivers

1. Partnership with manufacturers to strengthen IRS in all the LGAs based on its success in the piloted LGA. Kano state being the economic center of the Northern states in Nigeria where many manufacturing companies are situated, it is easy for the state

government to go into active partnership with the companies. This can take the form of tax relief, subsidies and corporate social responsibility roles of the companies

2. Partner with the pharmaceutical companies in the state to locally manufacture ACTs and SPs at subsidized rates for use in all public health facilities in the state.
3. Strengthen the state owned but moribund Drug Manufacturing Agency (DMA) to take over the production of essential drugs including antimalarial drugs for sale and use in all public health facilities in the state
4. Identify all stakeholders in the state and harmonize the planning, implementation and monitoring of all malaria activities within the state.
5. Mobilize resources through the LGAs and relevant line ministries like Environment, Water resources and Education for malaria control
6. Introduce the concept of community health insurance scheme to the communities since a great percentage of the population engage in trading and will be willing to contribute for their health promotion.
7. Partner with the electronic and print media organizations in the state for dissemination of malaria messages to the population.
8. Select and designate some health facilities as referral centers in areas with high prevalence of malaria and adequately equip them with basic anti-malarial drugs.

Population Health

1. Involve communities more in the activities of malaria control especially the rural communities and step up enlightenment campaign in the media to increase demand for use of LLINs.
2. Strengthen the Health Education Unit of the ministry of health towards community vigorous health education activities in the local

communities for increased knowledge on malaria and attitudinal change.

Zamfara State

Zamfara state has the highest poverty amongst the 4 states with little commercial activities. It also has a border with Niger Republic making cross-border surveillance important for malaria control in the state. Even though it has started getting the support of the USAID supported malaria project, the majority of the activities will have to be shouldered by the state government through the health ministry. The literacy level is also lower as compared to the other states. Strategies for this state will take into consideration the above factors for malaria programme sustainability.

Malaria Programme

- 1) The ministry of health to re-arrange its priorities by integrating malaria control with other health programmes while budgeting for most relevant activities to the state.
- 2) Strong and effective surveillance along the border and areas with streams by the ministry of health department of disease control.
- 3) Management training for the staff involved in malaria control within the health ministry and relevant ministries.
- 4) Continuous training of lower and middle cadre health on the public health facilities on current trends on malaria prevention and treatment guidelines
- 5) Giving malaria a priority in the ministry of health annual budgetary allocation.

Drivers

- 1) government policy to subsidize malarial drugs to increase affordability and availability by partnering with manufacturers

- 2) Establishing malaria champions in all the LGAs to improve community awareness and participation in all matters relating to malaria control in the state. This is also applicable to the element of population health.
- 3) Identify and mobilize additional sources of funding available in the state for malaria control.
- 4) Utilize additional funds from the LGAs and other state ministries to pool resources for malaria.

Population Health

- 1) Strengthening BCC activities by the state to increase demand for the use of health care services. This is in consonance with the very low literacy and high poverty rates in the state. This is a cross-cutting strategy that is applicable to all the 3 elements above.
- 2) Improve the knowledge of the communities through media campaigns and the National Orientation Agency of the information ministry.

Although these suggested strategies are state- specific, other state malaria programmes within the same geo-political zones of the country or having similar priorities, can find them replicable in their states.

G. Stakeholder Involvement and Participation

In all the states, stakeholders were found to be involved in different aspects of planning for malaria control. Local NGOs, CBOs and community members were involved in logistics of LLINs distribution, while other partner organizations were involved in preparation of malaria operational plans and harmonization meetings. The involvement of stakeholders is more in donor supported states like Gombe and Kano where normally stakeholder meetings are fully sponsored by the donors. So the level of stakeholder involvement in malaria control in the 4 states was not the same.

H. Impact of Capacity Building

Building the capacity of health workers and the community members was considered an important success factor for the malaria programmes. Some of the positive impacts the states mentioned included improvement in case management of malaria, better data reporting due to correct use of monitoring and evaluation tools, raised public awareness on the use of LLINs and hospital patronage. A great deal of the capacity building activities is funded by the donor organizations. This is certainly going to be one aspect that will require massive resources to fund by the states. The trainings extended to the health workers (on malaria case management, IPT and use of RDTs) in Gombe, Kano and Zamfara states cannot be compared to the one done by Adamawa state ministry of health.

One important factor that will determine the strength of capacity building activities in the states would be the management style of the malaria programs. States without donor support normally have weaker management teams at the level of the SMCPs as compared to states with donor support. This is due to the fact that donor programs make it as one of their outputs to strengthen the management of malaria by building the capacity of the SMCP teams in the states. Management trainings are organized for the senior level staff of the ministry of health to improve their management and planning skills. Gombe and Kano will be expected to have stronger SMCP management as compared to Adamawa.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The FGDs and In-depth interviews have established the link between malaria programme, its drivers and health needs and priorities of the population which need to be considered in planning for a sustainable malaria control.

The interviews and progress reports of the state malaria programmes and donors identified a number of success factors recorded by the programmes. These factors which included universal distribution of LLINs, IRS, provision of free ACTs and capacity building of health workers and community volunteers and stakeholder involvement in planning and implementation, were key to the success of the programmes. However, certain other success factors like the acceptance of the programme by the people and their willingness to sleep under the nets could be attributed to good and sustained social mobilization which can vary from one state to the other. It is imperative therefore, to harp on these success factors in planning for malaria sustainability.

The reliance on the donor funding especially on the purchase and distribution of nets which constitute a major cost of funds for malaria control in the states has made the states not adequately prepared to think of alternative financing alternatives for sustaining the malaria programmes. The states can however, mobilize additional funding from the LGAs, NGOs, MDGs fund , Federal Ministry of Health and other state ministries for malaria control.

A number of strategies based on the needs, priorities and resource availability for the different states are suggested as alternatives for sustaining malaria control. These include exploring the partnerships with the private sector especially for states with high economic activities. This can take the form of local production of treated nets and malaria drugs through subsidy policy from the government and tax relief. Other strategies include involving the communities to contribute to malaria control

through trainings, community health insurance schemes and participation in distribution of drugs and nets; vigorous resource mobilization; strengthening of environmental management policies and ensure strong surveillance systems especially in states with international borders. All these may provide windows of opportunity for making malaria programmes sustainable.

The impact of donor support based on the quantitative data cannot be comparable across the 4 states as the quality of data obtained on mortality and morbidity may be questionable due to absence of a standard and uniform data collection across the states. The NDHS data that gives a comparison of the malaria indicators in the four states was done in 2008, and the donor support in the three states of Gombe, Kano and Zamfara started between 2008 and 2010. Moreover, the donor expenditures in all the supported states were not available to enable comparison between the four states. The data were supposed to reflect an improvement in the malaria indicators especially in states with donor support which was not the case. This makes it mandatory for the states to first improve their data quality as no planning or policy can be done without the availability of qualitative data

However, with the findings of the qualitative data from interviews in the four states and the donor programmes, along with the focus group discussions in Kano State, the success factors and priorities of the states were identified and these were used to suggest state-specific alternative strategies for sustaining malaria control. Although these may be subject to approval by the different states, they may form a starting point for the states to build on.

The states may have gaps to fill in their malaria programmes especially the supply of LLINs, ACTs and capacity building activities when the donors withdraw, but they have the capacity to sustain the most important and relevant activities of malaria control in the short and medium run by building on the gains achieved from the donor organizations and using their available human and material resources while making adequate plans for the longer term using the suggested strategies.

Recommendations

Based on the findings from the different states, the following will be useful to the states in coming up with policies and strategies to sustain the activities of their malaria control programmes in the short, medium and long term ranges:

Short and Medium Terms

1. Identification of the programme activities that will be sustained as prioritized by the different states based on their needs and resource availability.
2. States to map out and engage the commercial sector - private partners - within their domains and establish a relationship by involving them in all malaria activities. This can be through tax relief for LLINs, social marketing, transfer of the LLIN technology to local manufacturers and targeting IRS to densely populated areas or where the use of LLINs was challenging like schools, prisons, and areas with short malaria transmission seasons.
3. Plan for the training of community volunteers/Community Care Givers for mass mobilization and distribution of antimalarial drugs and insecticide treated nets. The existing ward development committees (WDCs) can be used for that purpose.
4. Immediate improvement in malaria data quality through data quality training for all personnel involved in data collection and analysis.

Long Term

1. The option of local manufacture of the LLINs by the local manufacturers can be employed as a long term strategy to reduce the cost of the imported ones and make them more affordable to the poor.
2. The issue of capacity building of health workers in form of on-the-job training needs to be institutionalized by the state ministries of health.

3. The trend of increasing U-5 mortality and morbidity in the states which was identified needs policy intervention from the states to reverse.

4. Liaising with the National Agency for Drugs and Foods Administration control (NAFDAC) and National Institute for Pharmaceutical Research and Development (NIPRIDP) for research into quality and efficacy of the existing anti-malarial drugs and other operational research issues.

5. Liaise with the schools of Nursing, Midwifery and health technology in retraining junior and middle level cadre of health workers (make it part of their curriculum).

Recommendation for further studies.

Further studies on the aspects of financial sustainability of the malaria programmes will help to better formulate alternative strategies for malaria control in the states.

Limitations of the Study

1. Other states that donors support in the southern part of the country were not involved due to time and resource constraints.
2. The study does not take into consideration expenditure on support given by the donors in terms of communication materials (IEC) and print and electronic media which is a substantial part of their activities.
3. Data on expenditure by the states were obtained only in one state Gombe, and were cumulative up till the last quarter of 2011. Results of the FGD and In-depth interviews were used in arriving at the conclusions and recommendations

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APPENDICES

APPENDIX A: FOCUS GROUP DISCUSSION QUESTIONS

- 1) Malaria is a big problem to our society, lives are lost, resources are spent and there is need for a concerted effort to tackle the problem. What do think this malaria is and how do we prevent ourselves from it?
- 2) State and donors contribute to malaria control through different ways, eg treated bed nets distribution, spray and malaria drugs. What is the level of contribution and involvement of community members and what benefits do they derive from all these?
- 3) Does the state or donor programmes involve the community in planning for these malaria control activities? E.g. Monitoring and Evaluation, bed nets distribution, community mobilization and support?
- 4) If this community is asked to enumerate its priorities in terms of the support it requires for malaria control, what will they be, who will be responsible and in what aspects?
- 5) The state has budgetary constraints and donors have changing priorities and likely to reduce or withdraw funding in the long run, will the community contribute to continue supporting these activities in the short, medium and long term and will that be self-sustainable?
- 6) What role can traditional medicine healers play in the community in malaria control?
- 7) Do you see training of community members on home management and diagnosis of malaria as beneficial to the community? If yes how will the community coordinate that –in the short and long run- in the absence of state or donor funding?

APPENDIX B: IN-DEPTH INTERVIEW QUESTIONS

1. Malaria has been a leading cause of mortality, morbidity and economic loss to the citizens and the country. It has been estimated that over N130 billion is lost annually in terms of treatment costs, loss of man hours and absenteeism from school. How serious is the problem in this state?

2. What activities does the state/programme support as part of the malaria control activities?

3. What are the success factors and lessons learnt so far in terms of the support the state/programme gives?

4. What preventive measures (provision of treated bed nets, SPs and IRS) do you think are most relevant to the state and likely to be sustained in the long run? Can they be ranked in order of importance?

5. Are there other sources of funding supplementing the state expenditure on malaria?

6. Are other stakeholders and the communities involved in planning for malaria control activities? (Eg M&E, Distribution of LLINs and SPs etc)

7. Funding malaria activities requires resources on a sustained level, considering the fact that the states don't adequately budget for malaria due to resource constraints, what alternative ways (in order of ranking) are open to the state to augment what is currently available

8. Donors and other international NGOs are now in the forefront in funding malaria activities in the country. What do you see as financial and non-financial strategies for continuity of the malaria control activities should donors withdraw or decrease their support?

9. States are different in terms of malaria burden and priorities, what are the major priorities of this state/programme in terms of malaria control activities?

10. How does the state/programme harmonize its activities with that of other donors or NGOs also supporting malaria control in the state?

11. What is the impact of capacity building in relation to malaria control in the state?

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