



Support to National Malaria Programme

Context and an overview of the programme achievements, experiences and lessons

June 2012

Introduction

The purpose of this paper is to present an overview of the SuNMaP's achievements, experiences and lessons in the course of programme implementation. It highlights some of the implications of current experiences for other partners and ministries of health involved in implementing malaria control activities.

The support to the national malaria programme (SuNMaP) commenced its operations in March 2008 in 3 states namely Kano, Anambra and Lagos states, subsequently expanding in April 2009 to an additional 3 states namely Niger, Ogun and Katsina states. Results, experiences and lessons contained in this document relate largely to activities carried out in these 6 states. After a successful midterm review in July 2011, and on the basis of DFID's recommendations, the programme commenced engagement in an additional four states namely Jigawa, Enugu, Kaduna and Yobe states, bring the total number of supported states to ten. A detailed profile of programme supported states can be found in the programme profile document ²⁵.

The national estimates in 2008 for the under 5 mortality rate was 157 per 1000 and for the infant mortality rate was 75 per 1000 live births. This ranks Nigeria as a country with one of the highest childhood mortality rates (*World Bank electronic database*) ²⁷. Despite these grim statistics the mortality rates have progressively declined over the past 2 decades, from an under 5 mortality rate of 192 per 1000 in 1990. The 2008 national Demographic and Health Survey (NDHS) however highlighted some wide disparities across regions of the country with mortality lower in the southern parts (South West, Nigeria; 89 per 1000 live births) and higher in the northern parts of the country (North East; 219 per 1000 live births). Mortality rates are also different in urban (121 per 1000) and rural (191 per 1000) settings (*NPC, 'NDHS'; 2008: p 118-122*) ¹¹.

The federal ministry of health reports that up to 30% of under 5 mortality in Nigeria is attributable to fever presumed to be Malaria. Other important childhood illnesses impacting on childhood mortality include acute respiratory tract infections, diarrheal disease, vaccine preventable diseases and HIV/AIDs, while malnutrition is often an underlying predisposing or aggravating factor. In the past few years, greater emphasis has been given to parasite-based diagnosis of malaria cases which is in response to the shift in global recommendations on malaria diagnosis (*see background, SuNMaP strategy on improving access to malaria treatment, Jul 2011: pp. 4-11*) ²⁰. This policy shift if implemented at national scale will contribute to a better understanding of the real burden of malaria since we shall have data on the proportion of malaria and non-malaria fevers. National estimates of asymptomatic parasitaemia among under 5 children remain high with estimates of 42% in 2010 at the peak of the transmission season (*NPC/NMCP, 'NMIS report' 2010: p 63*) ⁸. There is a predominance of falciparum malaria in the country with 95% of malaria infections attributable to falciparum infection (*NPC/NMCP, NMIS Report' (2010: p 66)*) ⁹, which causes severe disease leading to more detrimental health outcomes and mortality.

The 2009-13 national malaria strategic plan aims at rapidly scaling up malaria control interventions to reach universal coverage of the population at risk of malaria, i.e. 97% of the total population. These targets are aligned with Roll Back Malaria's (RBM) Global Malaria Action Plan. It is against this back drop that the DFID funded, support to national malaria programme commenced operations in 2008 (NMCP, *National Malaria, Strategic plan 2009-2013*)⁵.

Below are the outputs of SuNMaP which are supportive of the national and state malaria control programmes to achieve the targets of National strategic plan. The six outputs are:

- i. Improved capacity for policy development, planning and coordination.
- ii. Improving coverage of effective measures for the prevention of malaria.
- iii. Improving access to effective treatment for malaria cases.
- iv. Increasing community awareness and demand creation.
- v. Support to the effective harmonization of partner efforts in malaria control
- vi. Operational research.

The programme approach in implementing its activities is outlined in its strategy papers (SuNMaP 'updated strategy for building capacity'¹⁷; SuNMaP 'strategy for improving access to malaria diagnosis and treatment'²⁰; SuNMaP 'updated strategy for providing evidence for malaria control'²²; SuNMaP 'updated strategy for promoting harmonisation and coordination in malaria control'²¹; SuNMaP 'updated strategy for strengthened integration of malaria interventions into routine service delivery'²³; SuNMaP 'updated strategy for demand creation for malaria control'¹⁹ and SuNMaP 'updated commercial sector strategy'¹⁸).

These documents are periodically reviewed to take on board lessons learned in the course of programme implementation.

Results

The principles underlying efforts to scale up malaria control interventions to all populations at risk is predicated on the accrual of the effects of multiple interventions, where rapid and high coverage is achieved, and that the resultant impact would be greater than any one intervention. (Steketee et al)¹⁵, see figure 1 below.

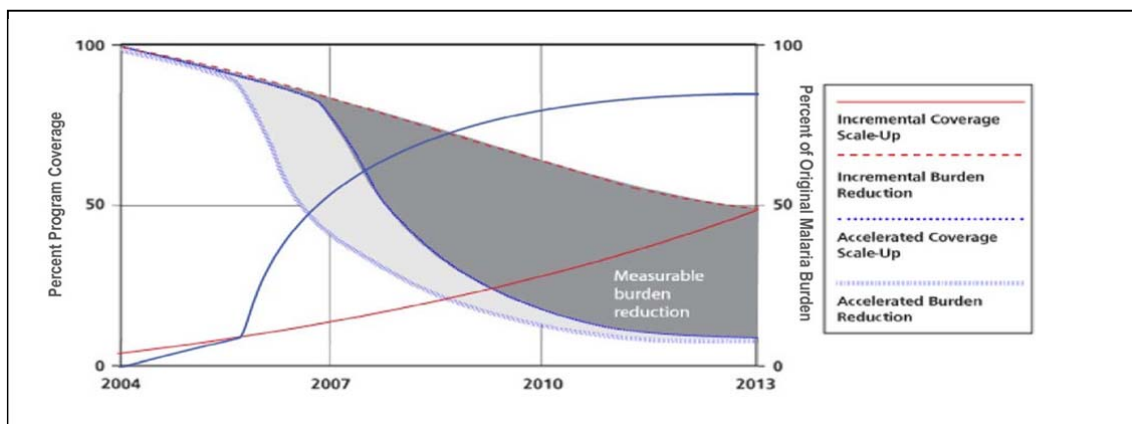


Figure 1: Malaria programme scale-up: relationship between coverage and expected burden reduction.

Note: Programme scale-up showing gradual incremental coverage increases (in red) versus rapid and accelerated coverage increases (in blue); the expected concomitant burden reduction suggests that the rapid and accelerated approach leads to an increased burden reduction and added benefit (in gray) from accelerated scale-up. This graphic assumes a direct relationship between population-based intervention coverage and programme impact; it also suggests a time lag between achieving high coverage and having the population experience the intervention benefit (perhaps across a malaria transmission season).

Steketee and Campbell *Malaria Journal* 2010 9:299 doi:10.1186/1475-2875-9-299

The SuNMaP monitoring and evaluation, and work plan performance tracking frameworks provide the mechanisms for measuring progress against objectives and targets and are guided by the following principles:

- i. Use as much as possible, existing nationally representative data sources.
- ii. Where appropriate mechanisms to collect relevant data do not exist, develop simple and easy to use monitoring tools.
- iii. Closely link M&E efforts to operational research (OR) to ensure that pertinent questions are answered.

The details of the programme approach are contained in the programme strategy for providing evidence for malaria control²².

Achievements in malaria prevention

A key achievement is the substantial increase in house hold coverage with Long Lasting Insecticidal nets (LLIN) which has translated into higher LLIN use. The findings from national surveys indicate a rise in household ownership of at least one insecticide treated net (ITN) from 8% in 2008 (NPC, 'NDHS report' state specific tables; 2008: p 392-394)¹² to 42% in 2010. It is noteworthy that household LLIN ownership was higher in programme supported states, 50.4% (NPC/NMCP, 'NMIS; 2010 'secondary analysis')¹⁰.

The use of LLINs also substantially increased, with proportion of children under 5 years who slept under LLINs the night before the surveys increasing from a baseline of 5.5% in 2008 (NPC, NDHS report)¹¹ to 28.9% (NPC/NMCP, 'NMIS Survey Report' 2010: p 49)⁷. Use among children under 5 in programme supported states was slightly higher in programme supported states, 30.4% (NPC/NMCP, 'NMIS; 2010; 'secondary analysis')¹¹. Mass LLIN distribution campaigns have played a significant role in scaling up ownership and use. The programme procured and distributed about two million LLINs as part of its contribution to the national LLIN campaigns; it has also continued to provide high quality technical assistance and leadership in support of the on-going national campaign. Through these and other efforts between March 2009 and May 2012, a total of 46,903,594 LLINs had been distributed to households across the country. (NMCP campaign update' (Jun 2012: p4)⁶. SuNMaP has been instrumental in this process and the successes made will not have been achieved without the programme.

In recognition of the need to continue at scale and sustain ownership and use, the SuNMaP programme is supporting the broad based country strategy for continuous distribution of LLINs. The strategy recognizes the critical role of continuous LLIN distribution channels as well as commercial sector players in responding to demand, consumer preference and choice. Details of the programme's approach in engaging with players in the value chain of commercially available LLINs are contained in the commercial sector strategy¹⁸.

After the mass distribution campaigns in programme supported states, the programme initiated and has successfully distributed about 1,349,356 LLINs through non-commercial continuous distribution channels. Pregnant women are provided with LLINs during their booking visit as part of the focused antenatal care (ANC) and infants presenting at routine immunization clinics are given LLINs, usually linked to measles immunization or child health weeks. The programme is supporting the state malaria control programme to expand LLIN distribution to more eligible facilities while exploring other viable channels of distribution such as schools and community directed distributors, drawing from lessons gathered from the national RBM partnership.

Progress has also been made in supported states in the area of prevention of malaria in pregnancy with intermittent preventive therapy (IPTp). The proportion of pregnant women within the last 2 years that received IPTp (2 doses) rose from 2.9 % in 2007 (NBS / UNICEF, '2007

MICs')⁴ to 4.9% in 2008 (NPC, NDHS report)¹¹ and then to 17.4% in 2010 (NPC / NMCP, 'NMIS Report' 2010: p 63). In support of national policy, the programme has cumulatively procured and distributed about 2.9 million doses of Sulphadoxine-Pyrimethamine (SP) for intermittent preventive therapy to facilities in programme supported states which it is envisaged will lead to some newborn lives saved.

Lessons identified in supporting malaria prevention.

Estimation and projection models developed with the assumption of a 3 year median life span of a net (Net Calc[®] modelling tool) have indicated that even at optimum capacity, routine distribution to pregnant women at antenatal clinics may not be sufficient to maintain the high coverage achieved through mass campaigns. This position is supported by the RBM vector control working group, continuous distribution work stream (*Roll Back Malaria (RBM Secretariat, June 2011)*¹⁴). Country experience on resource commitments for large scale campaigns, in light of global resource constraints and consideration related to sustainability, have resulted in low enthusiasm for repeated large scale campaigns. For a country with an estimated population of over 160 million, a more decentralized approach may be needed to fill gaps in coverage. This has led the programme to lead the way in exploring other effective channels of distribution such as school-based distribution and distribution through community directed distributors. Commensurate efforts are also required to understand factors that militate use (Ankomah A et al, 2012) 1, and stimulate commercial sector participation in the LLIN market.

Uptake of SP as intermittent preventive therapy in pregnancy (IPTp) across locations has been significantly influenced by factors such as ANC attendance rates across programme supported states (lower in the northern parts of the country) and in other instances access to clients with preferences for private health facilities (higher in urban setting of the southern states). Current National policy views IPTp as part of the focused ANC package and efforts are underway to promote ANC attendance and improve engagement with private sector health facilities, using faith-based facilities as an entry point.

Achievements in prompt and effective malaria case management

National figures indicate that access to prompt and effective treatment with ACTs has improved from 2.4% in 2008 for children under 5 years with fever episodes in the last 2 weeks treated with artemisinin-based combination therapy (NPC, NDHS 2008: pp 398)¹³, to 5.9% in 2010 (NPC, NDHS report)¹¹. The estimate for this access indicator was 6.5% in the SuNMaP supported states (NPC/NMCP, 'NMIS 2010 secondary data analyses')¹⁰.

The strategic approach to this work, outlined in 2010, was premised on adequate national supply of ACTs (informed by a gap analysis done by NMCP). This later proved to be misleading as forecast quantities from some sources failed to materialize, recognising the need for solutions to supply chain constraints, the programme revised its strategy on improving access to malaria diagnosis and treatment (*SuNMaP 'strategy for improving access to malaria diagnosis and treatment'*²⁰). A major change was to increase flexibility to support procurement of ACTs to fill gaps and the inclusion of malaria rapid diagnostic tests (mRDTs) to support the shift to parasite-based diagnosis. SuNMaP has subsequently procured its first batch of 225,850 ACTs to fill immediate supply gaps in programme supported states; delivery to health facilities is currently on-going. The paradigm shift in focus from presumptive to parasite-based diagnosis has presented an opportunity to address diagnostic capacity of the health workers and contribute to health system strengthening. Formative research from a rapid appraisal of diagnostic capacity in randomly selected secondary health facilities in 3 programme supported states indicate a fever testing to treatment ratio of only 0.5 (*SuNMaP, preliminary HMIS review 2011*)¹⁶. SuNMaP has also procured an initial 215,130 mRDTs for use at PHC facilities across supported states; distribution is on-going. To optimise utilisation of these commodities, the knowledge, skills and practices of health

workers has required capacity building.

About 6,062 health workers from 2,257 health facilities and an additional 3,256 PMVs (5,513 service delivery points) have received training updates on malaria case management and prevention across the programme supported states; Table 1 below provides a breakdown of on-going capacity building activities in programme supported states.

| State | H/F Covered | LGA Coverage | PMVs Trained | Total Service Delivery Points |
|---------|-------------|--------------|--------------|-------------------------------|
| Anambra | 427 | 8 | 579 | 1,006 |
| Kano | 298 | 11 | 1112 | 1,410 |
| Katsina | 488 | 9 | 54 | 542 |
| Lagos | 183 | 11 | 960 | 1,143 |
| Niger | 608 | 8 | 188 | 796 |
| Ogun | 253 | 7 | 363 | 616 |
| Total | 2,257 | 54 | 3,256 | 5,513 |

Table 1: Capacity building in malaria case management and prevention in programme supported states (March 2012).

Lessons identified in supporting malaria case management.

The long standing practice of presumptive diagnosis of malaria has led to a gradual decline in skills of health workers in parasite-based diagnosis, in this case microscopy. There is evidence that malaria cases may be over diagnosed as fever no longer equates to malaria cases (D’Acremont et al, 2010)². In addition as malaria transmission declines as a result of high coverage with control interventions, there is need for greater access to more reliable diagnostic tools. Importantly the management of non-malaria fevers especially at community (Counihan et al, 2012)³ and primary health care levels will need to be addressed if access to parasite-based diagnosis is to be equitable and universal. This will necessitate a more integrated approach in the implementation of malaria control activities. The policy landscape will need to change to accommodate these issues, and the programme is contributing to this critical process.

Achievements in demand creation for malaria control services

Provision of commodities is not sufficient alone to bring about high coverage. Knowledge among users of the effective and recommended interventions is needed; awareness of where services are available will help to promote prompt care seeking. Together these and other factors create the demand for services that if matched with supply of quality services will lead to better health outcomes. SuNMaP supports demand creation through mass media, and community related and interpersonal communication channels at service delivery and community levels. The interventions across these work streams have been structured to be complementary. With improved awareness and knowledge it is envisaged that health seeking practices will be better. The programme has supported the generic marketing of LLINs, with a view to raising awareness and subsequently demand, thereby contributing to growth of the LLIN commercial sector. Details can be found in the programme demand creation and commercial sector strategy papers^{18, 19}.

General awareness and knowledge of malaria and its control interventions are generally quite high. Findings from Omnibus surveys done in 2010 (carried out six monthly) show that up to 91% of women of childbearing age knew the protective benefits of LLINs, and 86% recognize the need to seek treatment for malaria within 24 hours. Knowledge of the preventive benefits of IPT among women of child bearing age was however low at 29% (SuNMaP, ‘RMS Omnibus trend analysis’,

2010-2012)²⁵. There have been improvements in health seeking behaviour with 34.9% of children with fevers within the last 2 weeks taken for treatment within 24 hours (NPC/NMCP, 'NMIS 2010 secondary data analyses')¹⁰ as compared to the 15.2% at baseline (NDHS 2008). It is likely that better treatment seeking behaviour is influenced by improved availability of commodities. There was an increase in LLIN use among children under 5 the night before the survey from 5.5% in 2008 (NDHS 2008) to 28.9% (NMIS 2010). Figure 2 below illustrates some findings from the last two six monthly surveys on levels of awareness across programme supported states. Among women of childbearing age, levels of knowledge of the benefits of LLINs, remain quite high (94%, Feb 2012), as well as recognition of the need to seek treatment for malaria within 24 hours, which was up to 91%. Knowledge of the benefits of IPT was at 76% in year 2011. (SuNMaP, 'RMS Omnibus trend analysis', 2010-2012)²⁴

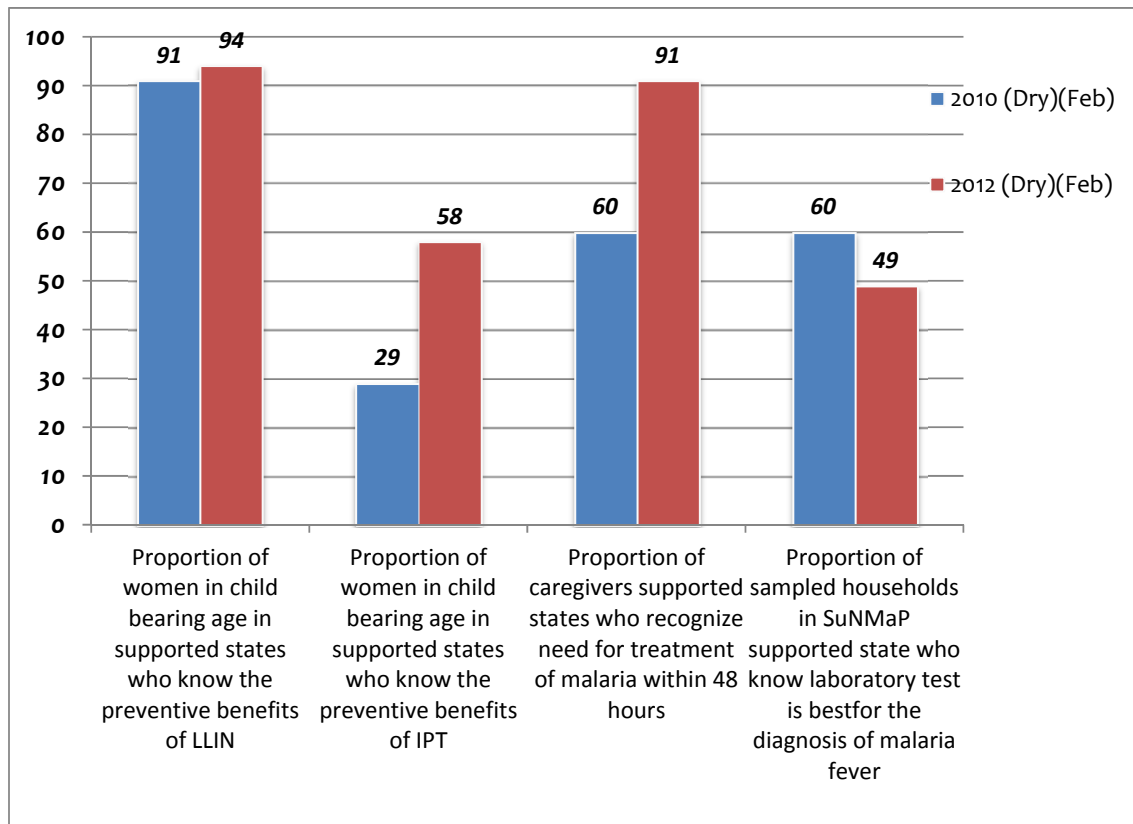


Figure 2: Highlights of findings from 2 rounds of omnibus surveys in six SuNMaP supported states

Insights into the contextual factors and relevance of channels of communication are probed through community level assessments (CLA), for example while many of the respondents reported regularly using malaria prevention measures, some have indicated constraints such as the cost of purchase in rural settings and among some urban dwellers a feeling of heat or claustrophobia while under the net.

Most CLA respondents and virtually all pregnant women could recall the messages on the benefits of IPT and LLINs. The CLA, Figure 3, also help the selection of the appropriate media mix and preferred medium of communicating messages across the supported states. See box below for selected testimonies on the role of sulphadoxine-pyrimethamine (SP) in IPT ²⁶



Figure 3: Community level assessment with household heads in Niger state

Box 1: Testimonies on the role of SP for IPT

1. “We took SP during pregnancy and didn’t have malaria as we did in the past” *Care giver of children under 5years- Lagos state*
2. “In my previous pregnancies, I did not go to the clinic to register and I suffered from malaria a lot but since I heard that message, I have gone to register and I was given a drug that prevents malaria in pregnancy. When my pregnancy was seven months, I was given the drug again and I have not experienced any malaria attack” (*Care giver of children under, Ogun State*).
3. “Our pregnant women have been going to register at the health facility now and using the drug preventing malaria. Also, there has been a reduction in cases of pregnant women having malaria” (*Community leader, Ogun state*).
4. “We encourage our wives to attend ANC and to prevent them from miscarriage they have to take preventive treatment and medicine from the clinic. The pregnancy drug (SP) drugs are really working, especially if they take it as the Health worker says” (*Head of Household, Niger state*)

Lessons identified in supporting demand creation activities

Radio continues to be the most popular channel for delivery of mass media messages. Other channels include interpersonal communication channels through service providers, backed by communication support materials. The use of TV programming is to be considered as a possible channel, particularly as it was repeatedly mentioned by respondents (especially in urban and peri-urban settings) as a vital source for health related information.

Achievements in building capacity for effective management of malaria control programme efforts

A unique feature of SuNMaP’s efforts in human and institutional capacity building is in the inclusion of sound programme management. The harmonized NMCP capacity building package, developed with support from SuNMaP, identifies key areas of planning and plan reviews, general management, monitoring and evaluation, and integrated supportive supervision as essential to the running of a functional malaria control programme. Other topical areas addressed in the package include procurement and supply chain management (PSM), records keeping and accounting. Details of the programme approach to capacity building and a summary of lessons learned can be found in the programme capacity building strategy and capacity building round table report.

By March 2012, about 68 health management teams from SuNMaP supported states have benefited from these capacity building efforts on malaria related programme management.

Overall about 2,737 health workers and managers across all levels have participate in learning sessions from the capacity building package. Table 2 below gives the numbers and categories of health workers that have benefited from capacity building efforts through SuNMaP by March 2012.

| Category of programme management capacity building interventions conducted | | | | | | | |
|--|---|-------------------------------|---------------------------------------|---|---|------------------------------|-------|
| State | € Executive Orientation of top management of SMOH | * State Malaria control Teams | Ω LGA Health Management team training | ∞ Focused support to selected LGA management team | x Integrated Supportive Supervision teams | # Hospital management teams. | Total |
| Anambra | 1 | 1 | 1 | 5 | 1 | 1 | 10 |
| Kano | 1 | 1 | 1 | 11 | | 1 | 15 |
| Katsina | 1 | 1 | 1 | 9 | | 1 | 13 |
| Lagos | 1 | 1 | 1 | 5 | 1 | 1 | 10 |
| Niger | 1 | 1 | 1 | 6 | | 1 | 10 |
| Ogun | 1 | 1 | 1 | 5 | 1 | 1 | 10 |
| Total | 6 | 6 | 6 | 41 | 3 | 6 | 68 |

Table 2: Capacity building on programme management in supported states

Foot note: € Participation at top management level with directors and top management health staff in attendance , to update the team on National policy direction and gain buy in prior to roll out at lower levels. * Core management team involved in the day to day management of malaria control activities within the state. Ω Senior management at LGA level usually led by the medical officer of health or PHC Coordinator and oversees public health issues within the LGA. ∞ Focal points involved in the day to day management of LGA malaria control activities. x Integrated supportive supervision team are cross cutting members of health management team at state and LGA levels who supervise the activities of the health work force through field visit and on the job capacity building activities .

SuNMaP has supported the state ministries of health in some states in streamlining the structure of their state malaria control programmes to align to the national recommendations. Notable achievements include moving the state malaria control unit in Ogun & Katsina states from the state primary health care boards to its rightful place in the state ministry of health. The programme has supported the institutionalization of malaria annual operational planning and review process in all its supported state and has supported the development, production and distribution of capacity building materials such as policy documents, capacity building modules and job aides at National level and across the supported states.

Lessons identified in supporting capacity building

The programme in the past four years has worked with individuals and teams in scaling up malaria control interventions at the national and programme states and using a practical hands-on and learning by doing approach contributed critically to capacity development. It is recognised that for the results achieved by SuNMaP and other RBM partners there is need for strengthened capacity for technical leadership, stewardship and coordination in the National and State malaria control programmes. SuNMaP contributes to this process by joint appraisal and assessment of the institutions, development of tools or frameworks that address key institutional constraints, evidence based monitoring of performance and encouraging joint learning and continuous improvement.

Health systems

In supporting the national malaria control response, the relevance of functional cross cutting frameworks that make up the health system have continued to impact on the effective implementation of malaria control programme activities, for example the supply chain and M&E

systems. Related to these are the fundamental considerations of governance, health work force, central planning and review processes, resource mobilization and infrastructure. The effective integration of malaria related health services into the health systems at community, primary and first referral levels of care, present challenges but also opportunities to contribute to health system strengthening. It has been important to seek ways to tackle these challenges by leveraging resources where possible from other partners and engaging them to address the health system gaps which are beyond the scope of SuNMaP (See *SuNMaP Capacity building strategy*)¹⁷.

Sustainability

At the onset of SuNMaP, value for money and sustainability were important considerations. The thinking was that for long term impact, high intervention coverage should be sustained over a long period. To achieve the national malaria control targets and goal requires the institutionalization of relevant best practices that can outlive the programme and serve as catalysts for continued health system strengthening. The underlying principles underpinning the programme's approach to sustainability include the following:

1. Stakeholder Participation: Each technical support process has been designed to ensure the active and full participation of relevant State officials thereby enhancing in-State technical capacity to identify and respond to malaria related issues.
2. Support to line systems: As much as possible, working with and through existing structures, rather than creating new ones.
3. Advocacy and resource mobilization: At each and every opportunity, State level policy makers, resource allocators and implementers have been sensitized and encouraged to take the lead and demonstrate ownership of malaria control initiatives, rather than reliance on and deference to RMB partners and implementing agencies. Also advocating for the creation of dedicated budget lines for malaria control and other ancillary activities.

In addition to the above, a specific programme output focused on harmonization by providing a platform to promote alignment and drive a collective agenda. With broad-based participation of stakeholders the gains that are made can go well beyond individual programme resources. Below are some examples of results from this output of the programme.

1. Support to the development of harmonized National CB Package, now in use (PMI through MAPS, WB Booster, GFATM through its sub recipients) across the RBM Partnership:
 - i. Consensus achieved on curriculum of the package (Sep 2009)
 - ii. Pooling & review of available material across the RBM partnership (Dec 2009)
 - iii. Development / review of content of modules (Jan 2010)
 - iv. Field testing and roll out of modules in 6 programme supported states (Oct 2010- Aug 2011)
 - v. Capacity Building round table to receive feedback from stakeholders including the broad partnership as part of a continuous improvement process (Oct 2011). Twelve training Modules developed, Ten of the CB modules have been field tested, revised and finalized, 4 modules outstanding.
 - vi. National Orientation of Key stake holders and partners of CB approach and content (Apr 2012)
2. System strengthening and annual operational planning and review process. Support to the NMCP and SMCPs in programme supporting states in strengthening annual operational plan (AOP) development and plan implementation review processes as a tool for effective coordination and resource leveraging. AOP plans developed and in use in 6 programme supported states.
3. Operational Research platform and development of knowledge base. Raising the profile of operational research as a basis for informed decision making, while promoting

stronger linkages between the national programme, partnership and the research community.

- i. Support the NMCP and partnership development and consensus around OR priority setting methodology and process and facilitate first OR priority setting workshop. (May 2010)
- ii. Support the programme in facilitating OR mapping process of studies related to malaria control in the country context (Dec 2010).
- iii. Operational research symposium. (Mar 2012)

Bibliography

1. **Ankomah A et al**, BMC Public health 'Determinants of insecticide- treated net ownership and utilization among pregnant women in Nigeria', (2012, 12:105)
2. **D'Acromont et al**, Malaria Journal 2010 'Reduction in the proportion of fevers associated with plasmodium falciparum parasitaemia in Africa' (2010, 9:240)
3. **Counihan et al**, Am. J. Trop. Med. Hyg. 'Community health workers use malaria diagnostic test (RDTs) safely and accurately: Results from longitudinal study in Zambia' (87(1), 2012, pp.57-63)
4. National Bureau of statistics (**NBS**), **UNICEF**, 'Monitoring the situation of children and women, Multiple Indicator Cluster Survey (**MICS 2007**)' (2007: pp ix)
5. National malaria control programme (**NMCP**), Federal Ministry of health, 2008 ; 'A road map for malaria control in Nigeria, **Strategic plan 2009-2013 (Jun 2008: p17-34)**
6. National malaria control programme (**NMCP**) state support team, 'National **LLIN campaign update**' (Jun 2012: p4)
7. National Population Commission (**NPC**), National Malaria Control Programme (**NMCP**), 'Nigeria Malaria Indicator Survey (**NMIS**) Report' (2010: p 49)
8. National Population Commission of Nigeria (**NPC**), National Malaria Control Programme (**NMCP**), 'Nigeria Malaria Indicator Survey (**NMIS**) Report' (2010: pp 63)
9. National Population Commission of Nigeria (**NPC**), National Malaria Control Programme (**NMCP**), 'Nigeria Malaria Indicator Survey (**NMIS**) Report' (2010: pp 66)
10. National Population Commission (**NPC**), National Malaria Control Programme (**NMCP**), 'Nigeria Malaria Indicator Survey (**NMIS 2010**)' **secondary analysis** of data set summary tables, (Jul 2012)
11. National Population Commission of Nigeria (**NPC**), 'Nigeria demographic and health survey (**NDHS**) report' (2008: p 118-122)
12. National Population Commission of Nigeria (**NPC**), 'Nigeria demographic and health survey report (**NDHS**)' **state specific tables** (2008: p 392-394)
13. National Population Commission of Nigeria (**NPC**), 'Nigeria demographic and health survey report (**NDHS**)' **state specific table** (2008: pp 398)
14. Roll Back Malaria (**RBM**) **Secretariat**, '**Consensus statement** on continuous distribution systems for insecticide treated nets' (June 2011), On line viewed : http://www.rollbackmalaria.org/partnership/wg/wg_itn/docs/vcwg6report1.pdf
15. **Steketee RW, Campbell CC**, (2010) 'impact of national malaria control scale-up programmes in Africa: magnitude and attribution of effects', Malaria journal, (2010: 9:299)
16. Support to national malaria programme (**SuNMaP**), 2011 Baseline health management information system (**HMIS**) review report, (Mar 2012)
17. Support to national malaria programme (**SuNMaP**), '**updated strategy for building capacity for malaria control**' (Jun 2012)
18. Support to national malaria programme (**SuNMaP**), '**updated commercial sector strategy**' (Jun 2012).

19. Support to national malaria programme (SuNMaP), '**updated strategy for demand creation for malaria control**' (Jun 2012)
20. Support to national malaria programme (SuNMaP), '**programme strategy for improving access to malaria diagnosis and treatment**' (Jun 2012)
21. Support to national malaria programme (SuNMaP), '**updated strategy for promoting harmonisation and coordination in malaria control**' (Jun 2011)
22. Support to national malaria programme (SuNMaP), '**updated strategy for providing evidence for malaria control**' (Jun 2012)
23. Support to national malaria programme (SuNMaP), '**updated strategy for strengthened integration of malaria interventions into routine service delivery**' (Jun 2011)
24. Support to national malaria programme (SuNMaP), **RMS Omnibus 'trend analysis from repeat omnibus surveys'** (Jul 2012)
25. Support to national malaria programme (SuNMaP), '**updated profile of programme supported states**' (Jul 2012)
26. Support to national malaria programme (SuNMaP), '**Synthesis report of community level assessment**' (Jul 2012)
27. **World Bank electronic database**, 2012, 'Mortality rate, under 5 per 1000 live births', Online viewed 10th July 2012, <http://data.worldbank.org/indicator/SH.DYN.MORT>