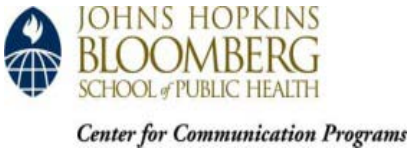
Proposal for the

Southern Sudan Community Based LLIN Continuous Distribution Pilot



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List of Acronyms

Antenatal Clinic	ANC
Behaviour Change Communication	BCC
Boma Health Committee	BHC
Community Based Organisation	CBOs
Community Drug Distributors	CDDs
Community Health Worker	CHWs
Community Nutrition Workers	CNWs
Expanded Programme of Immunisation	EPI
Focus Group Discussions	FGDs
Government of South Sudan	GoSS
Household	HH
Indoor Residual Spraying	IRS
Insecticide Treated Nets	ITN
Johns Hopkins University Centre for Communications Program	JHU CCP
Long Lasting Insecticidal Net	LLIN
Lot Quality Assurance Sampling	LQAS
Malaria Indicator Survey	MIS
Ministry of Health	MoH
National Malaria Control Programme	NMCP
Net Coupon Holder	NCH
Primary Health Care Clinic	PHCC
Primary Health Care Unit	PHCU
Rapid Diagnostic Test	RDT
Terms of Reference	ToR
Universal Coverage	UC

Background

Malaria and respiratory diseases account for more than 50% of South Sudan's health burden[1] and malaria accounts for 40% of all health facility visits (Southern Sudan Commission for Census, Statistics and Evaluation (SSCCSE, 2004). Malaria transmission is perennial but with seasonal variations with peaks occurring at the end of the rainy season[2]. Results from the Southern Sudan Malaria Indicator Survey (MIS) in 2009 suggest that parasite prevalence is 25% among children under five if tested using a rapid diagnostic test (RDT) or 14% if tested using microscopy. Parasite prevalence seems to be slightly higher in rural areas (26%) compared to urban areas (18%).

Preventive measures against malaria currently focus on the distribution and promotion of long lasting insecticidal nets (LLINs), although indoor residual spraying(IRS) in towns and municipalities was effectively used up the mid 1980's until the collapse of infrastructure and public health services made it impossible to implement. The Government of South Sudan (GoSS) Ministry of Health (MoH) has set itself ambitious targets to scale up LLIN coverage through mass campaigns (see Table 1 below); over four million LLINS have been distributed since 2008, and provide one LLIN for every two members of a household.

Table 1: Approximate numbers of LLINs distributed in Southern Sudan since 2008, mostly through mass campaign distributions

State	2008	2009	2010
Upper Nile		1,785	534,100
Jonglei		502,660	170,817
Unity			567,300
Warrap	779,182	54,469	2,906
Northern Bahr-El-Ghazel		816,394	
Western Bahr-El-Ghazel	246,988		
Lakes		533,887	26,613
Western Equatoria	100,000	116,683	190,299
Central Equatoria	37,896	316,576	499,500
Eastern Equatoria		259,567	211,505
Total	**1,164,066**	**2,602,021**	**2,203,040**

Data from the 2009 MIS suggests household ITN (insecticide treated net[3]) coverage (at least 1 per household) has increased from 12% of households in 2006 (Sudan Household Health Survey) to 53%, however, this hides considerable regional variation. At the time of the MIS only 50% of the States in Southern Sudan had received campaign LLINs, meaning that some locations will have considerably higher coverage while others will have considerably lower coverage levels.

[1] GoSS MoH, Health Strategic Plan 2011-2015, Draft 2

[2] Southern Sudan Malaria Control Strategic Plan, 2007-2011

[3] An ITN is an LLIN, a factory pre-treated net that was obtained within the previous 12 months, or a net treated with insecticide by the user in the past 12 months.

Universal coverage (UC) targets all household members, not only vulnerable groups within these households. Increased attention should therefore be given to developing distribution strategies to achieve the "mass effect", where a sufficient proportion of households own enough nets to reduce malaria transmission within the community.

National distribution strategies need to incorporate activities for both rapid scale-up and maintaining universal coverage. Mass campaigns are the best method to rapidly scale up LLIN coverage, especially when household ownership levels are low, however, decay and loss of campaign LLINs will commence immediately after distribution and accelerate over time. Complementary distribution mechanisms are therefore required that will provide replacement LLINs and supply those missed during the campaign. When household ownership of LLINs is high, continuous distribution via channels targeted to reach identified households and communities should be considered. In order to protect the investment made in achieving universal coverage, continuous distribution systems thus need to operate as an integral part of a comprehensive national LLIN strategy

Based on estimates for routine coverage[4], the number of LLINs that need to be distributed each year in order for a country to maintain universal coverage status is equal to 12-15% of the population assuming a 3-5 year useful life of the LLIN. A key component of ensuring that adequate LLINs are available at the community level to maintain this coverage is to establish sustainable channels outside of the formal health system. This is of particular importance in a post conflict context such as Southern Sudan, where antenatal clinic (ANC) attendance is low (55% according to preliminary MIS results 2009) and therefore the percentage of the community that can be reached through this mechanism is even lower than in other countries. Distribution system modelling shows that ANC and EPI *plus* an additional channel are required to maintain universal coverage following an effective campaign.

In light of this, the Goss MoH is interested in designing and implementing a community based continuous LLIN distribution system in South Sudan, tailored to its unique operational context. This study will test the feasibility, acceptability and costs of a community-based distribution approach of LLIN to sustain high coverage rates previously achieved through mass distribution campaigns. Funding for the implementation and in-depth evaluation will be provided by USAID through NetWorks.

NetWorks

The NetWorks project is a five-year USAID-funded global project that partners with country missions to improve and establish sustainable access to and use of Long Lasting Insecticidal Nets (LLINs). Through its comprehensive and innovative programming, NetWorks aims to build sustainable LLIN systems that bridge the key technical areas of advocacy, policy, distribution, monitoring, and communications in malaria endemic countries. NetWorks has been designed to be flexible yet comprehensive and dynamic in order to help empower national governments, USAID missions and their partners (civil society and the private sector) to create sustainable systems that increase access, enable ownership and promote appropriate use of LLINs and other malaria prevention technologies.

[4]Developed by Albert Kilian from Malaria Consortium

NetWorks has been designed to support National Malaria Control Programs (NMCPs) to develop efficient, comprehensive and multi-channel sustainable programs for achieving and maintaining high ownership and use levels of LLINs and related technologies by at risk populations. The project will build upon previous successful investments and efforts achieved through a range of public, private, campaign and routine approaches.

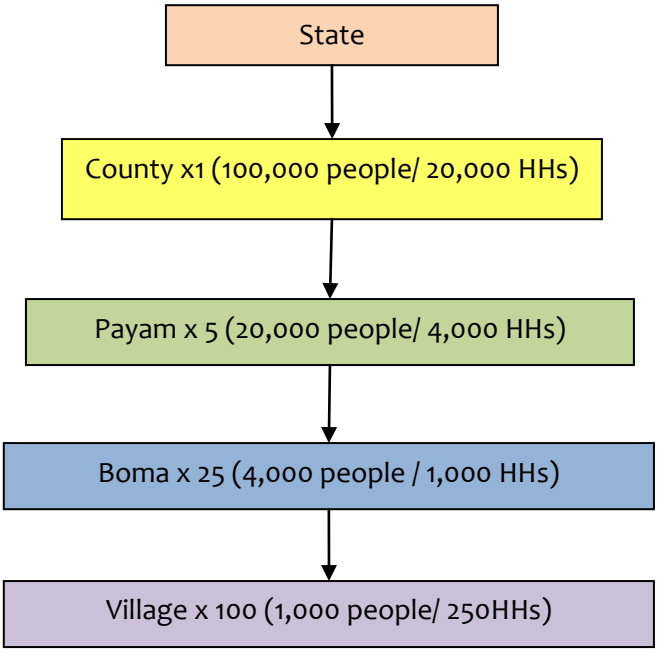
Study Geographic Coverage and Target Population

During a recent scoping exercise, the following criteria to identify a suitable implementation area were discussed:

- Most recent UC LLIN distribution no earlier than 2010
- Must have distributed 2-3 LLIN per HH with >80% coverage
- The county is accessible in the rainy season
- Security is not an issue
- The county should have a population of 100,000 - 150,000 so the study is able to cover the whole county with 40,000 LLINs or less. (see figure 1 below)
- There is routine distribution of LLINs through ANC already established or at least it is in the pipeline to start implementation during the study period
- Appropriate storage facilities are available at the county and payam level e.g. lockable and able to store 10,000 LLINs at county level and store 700 LLINs at payam level at a time
- Local administration is supportive of study and willing to collaborate

Based on the first criteria, only three States qualify; Central Equatoria, Unity and Upper Nile. Due to security issues and inaccessibility due to the rains both Unity and Upper Nile are not considered suitable sites. A rapid assessment will therefore be carried out in Central Equatoria State to identify the implementation county(s) using the criteria above.

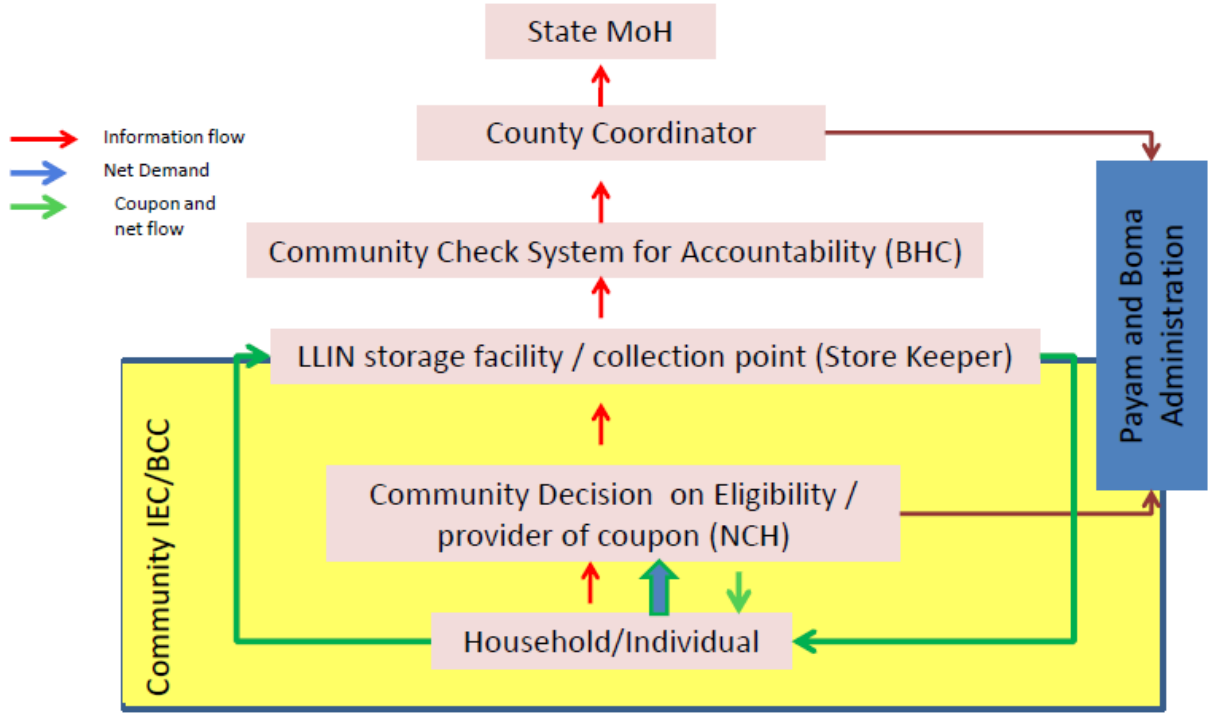
Figure 1: Possible breakdown of sample population



Study Approach

The implementation of the study will involve stakeholders from various administrative levels, from the state to the villages. Figure 2, below give a basic overview of the proposed system.

Figure 2: Overview of proposed distribution system



Summary of Study

The GoSS MoH and NetWorks have designed an integrated community based system to distribute LLINs on a continuous basis, using a pull-based system, i.e. families who feel they need additional nets approach a designated person in the community who will issue a coupon which can be redeemed at a local storage facility. The aim of the system is to provide a convenient and sustainable way of replacing LLINs in households where they may have been destroyed or lost. The mechanism will establish a system for determining the eligibility of persons/households that should get more nets, as well as criteria for selecting those members of the community who will determine whether or not the household is eligible. The design takes into consideration the various stakeholders in the community and the county administrative structure, to ensure full community participation and scalability. Effective systems for monitoring and accountability will also be instituted.

One county will be selected for the study implementation, with a population of approximately 100,000 people or 40,000 households. Assuming that each household will acquire one new net during the study period, 40,000 LLINs will be needed. The LLINs will be supplied to the county on a quarterly basis, meaning 10,000 LLINs per quarter. These nets will then be distributed to the payams on a monthly basis. Depending on the number of payams in the County, this will be mean approximately 700 LLINs per month to the payams. The LLINs will be stored at the payam Primary Health Care Clinic (PHCC) and managed by the PHCC Store Keeper. Each payam is made up of several bomas; a Net Coupon Holder (NCH) will be identified in each boma to be responsible for giving coupons to members of the community who are eligible for a new net.

The beneficiaries will then redeem the coupons at the PHCC store. The NCHs will be available at set days during the week in a specific place in the boma identified by the community. Villages will only be able to access coupons from the NCH assigned to cover that specific catchment area.

Implementation procedures

The LLINs will be transported to the county by NetWorks/Malaria Consortium. We anticipate needing approximately 40,000 nets for the study, based on the assumption that each household will request one additional net during the study period. These would be distributed to the county on a quarterly basis, using a push based system, with approximately 10,000 nets (approximately 200 bales) going to the county per quarter. From the county level, they will then be transported to the PHCCs in the participating payams on a monthly basis, where they will be stored and managed by the PHCC storekeepers. The PHCC's at the payams will then make monthly requests to the county store for the replenishment of LLINs, based on the previous months' consumption; therefore each payam will have to be able to store approximately 700 LLINs (14 bales)[5]at a time.

Coupons booklets for the NCHs will be printed with a stub and also stored at the PHCC. They will be provided to the NCHs on a monthly basis, based on consumption. The coupon booklets, which will come in packs of 25, will have individual serial numbers for accountability purposes. Each individual coupon will also have a specific serial number. New booklets will be given to the NCHs by the PHCC Store Keeper upon receipt of completed booklets. The Store Keeper will be responsible for reporting to the BHCs on the number of coupon booklets distributed to the NCHs each month, and the number of individual coupons the NCHs then handed out, based on the remaining stubs. The number of nets recorded as distributed in the Store Keepers registry will be compared with the number of coupons given out each month by the NCHs, in order to see how many coupon recipients followed through with the process and collected new nets.

In addition to the serial numbers, the following is an example of the information the coupons could capture:

- Name of head of HH
- Name of person who collected net coupon
- Name of village
- Name of boma
- # of dependents in HH
- Assign HH number based on mapping /baseline
- Serial number

Personnel and lines of reporting

The State MoH will appoint someone to take on the responsibilities of a County Coordinator for the study. This is salaried position (costs for salary will be covered by NetWorks) and should be someone who is already part of the MoH structure (payroll). The County Coordinator will work closely with the NetWorks Project Officer and will be expected to attend the monthly Boma Health Committee (BHC)

[5] Approximately 4 square meters

meetings in the participating payams, carry out supervisory visits to the net coupon holders, compile reports, oversee the logistics for the distribution of nets from the county to the payams, coordinate the study mobilisation and communication activities, and carry out advocacy activities for continuous distribution at various administrative levels. This person should sit in county health department level, and ideally be a technical preventative health person. The County Coordinator will be provided with a motorcycle for supervision purposes and a computer with a solar charger for record keeping and reporting.

BHCs are important structures in facilitating the communities to participate in decision making processes and promote community ownership at all levels[6]. In theory, BHCs already exist in each payam and are linked to the local PHCCs. Under this study, NetWorks will help to strengthen these structures and institute them where they do not already exist, developing Terms of Reference (ToRs) and evaluation methods in collaboration with the central MoH. The committees will meet on a monthly basis, to review registry books and reports from the LLIN stores at the PHCC/ payam level. They will submit monthly reports to the county and state MoH. The BHCs will form part of an investigative team, along with local leaders and the Project Officer, if anomalies are observed from the monthly reports and records. These investigations will be carried out in timely manner e.g. within a week of the problem being identified/ raised and will include a report and recommendations. The BHCs will also act at the main point of contact for complaints, recommendations and suggestions etc from the communities. The chair of BHC (usually the PHCC Officer in Charge) will meet with county administration and the Project Officer every other month to report on the progress of the study.

Each PHCC/PHCU will have a Store Keeper who is responsible for ensuring that the nets are available for collection whenever the PHCC/PHCU is open. This person should already be hired at the facility, with oversight of the routine LLINS seen as an extension of their current job description. Ideally this position holder should have warehouse experience and a reasonable level of literary and numeracy skills. A quarterly incentive will be provided by NetWorks, based on the timely submission of complete report and requisition forms. They will also receive training in warehousing and stock management, including a certificate verifying their participation. The store keepers will be expected to provide the BHCs with monthly reports and keep daily stock records therefore they will also be provided with a small notebook computer and solar charger for the purpose of record keeping and reporting.

The Store Keepers will be responsible for tracking the nets using a registry book. The following is an example of the information the registry will contain:

- State name
- County name
- Payam name & PHCC/PHCU name
- Date of collection of net
- Coupon booklet number & coupon number
- Name of Net Coupon Holder who handed out coupon
- Name of HH head that received net

[6]GoSS MoH, Health Strategic Plan 2011-2015, Draft 2

- Village of recipient
- Name of person who collected the net on behalf of the HH
- Thumb print of person who collected the net

A person will be identified at each Boma in the participating county to be the Net Coupon Holder (NCH). The role of NCH is to determine whether or not members of the community are eligible for more LLINs through the continuous distribution system. Eligibility criteria will be agreed upon with the relevant communities but could include:

- Current LLIN (s) are no longer effective, with 5 or more holes of diameter of 10cms or have been burnt or have numerous smaller holes[7]
- HH did not receive the correct number of LLINs in the mass campaign e.g. less than 1 LLIN/ 2 people
- Total 1 LLIN/2pp in each household
- Beneficiary is from the boma

The NCHs will be elected at the boma level and will be responsible for approximately 800-1000 households (HHs). They will carry out an initial mapping exercise of their area and develop a census list with support from County Coordinator and Boma Executive Chief. This position will receive a small daily incentive based on the number of days they are available per month (min 8, max 12), as verified by Boma Executive or Sub-Chief. Criteria for choosing the NCHs will also be agreed with the communities participating in the study, but are likely to include:

- Accessible by community members
- Chosen by community at boma level
- Not part of established health system, not already an elected or traditional leader
- Is available at specific times/week for people to come for coupons at specific place – to be agreed by communities
- People in community know who holds coupon through CBOs, CHWs, CDDs, CNWs etc and other community groups
- Have basic level of literacy and numeracy

Study Objectives

Primary objective:

- Test community-based continuous distribution systems in the South Sudan setting

Secondary objectives:

- Determine the effectiveness of these systems to maintain universal coverage of LLINs
- Guide policy on LLIN Distribution in South Sudan
- Determine the scalability, accountability and cost effectiveness of such a model

[7] More specific criteria to determine what qualifies as an unusable net will be agreed at the initial stages of the study

Expected Results

- Continuous distribution systems developed that maintain or increase LLIN coverage in selected communities
- Feasibility of scaling up continuous distribution systems in South Sudan context determined

Evaluation criteria

- Ownership and use coverage of LLIN with special focus on Universal Coverage indicators
- Acceptability – eligibility criteria accepted by community; convenience of system: picking up coupon and redemption is perceived as easy and convenient (% households using the system)
- Feasibility – continuity of LLIN supply
- Cost
  - Implementation costs per net delivered vs. mass distribution and/or ANC distributions
- Effectiveness
  - Universal Coverage sustained

Monitoring and Evaluation

Monitoring and evaluation will be carried out through a mix of surveys, routine data collection and focus groups discussions, making use of both qualitative and quantitative methodologies.

Surveys

There will be two types of surveys:

a) population-representative household surveys at base- and endline
b) net tracking surveys

Household surveys

These will be household interview surveys using a classical two stage cluster sampling approach where villages form the clusters and will be selected with probability proportionate to size so that a representative sample of the study area results. Within the village the necessary number of households will be selected from a complete list of eligible households using simple random sampling. The necessary sample size will be determined based on required precision and feasibility.

The data collection tool will be a structured and mainly pre-coded questionnaire based on the Malaria Indicator Survey template with additional sections as needed. Data will be collected on:

a) household characteristics and assets which allow construct of a wealth index
b) complete household member list
c) current ownership of any nets and their use and physical condition (number of holes)
d) previous ownership of nets, i.e. a "net history" over the past year of nets no longer owned
e) use of the coupon system and its perception (endline only)
f) perceptions on malaria prevention with nets

Net tracking surveys

These data collections are based on the lists of LLIN given out by the community-based distribution and will apply a Lot Quality Assurance Sampling (LQAS) based sampling approach. From each NCH's records of LLIN distributed 25 net recipients from three months ago will be randomly selected and the respective households visited by the field teams. A small questionnaire will be applied capturing:

a) whether the household actually existed (was found)
b) the LLIN given out are still presents (and in which physical condition)
c) whether they have been hung and used
d) thoughts on the continuous distribution system, e.g. ease with which they used the system

Analysis will follow LQAS principles, i.e. for each NCH catchment area a pass/fail assessment will be done based on previously agreed optimal and minimal target criteria. At the payam level the aggregated data will be used to calculate a percentage estimate for each indicator weighted by the size of each NCH catchment area.

Routine data collection

The routine data will document the flow of nets from the centre to the distribution points and from distribution points to the households and will be used to

a) record the number of nets distributed through this mechanisms and compare it to the number of nets needed to sustain UC obtained from modelling
b) evaluate the efficiency of the system, i.e. continuity of net availability (measured by frequency of stock-outs),redemption of coupons given out and completeness and accuracy of reporting

Every two months, the BHCs will select a sample of recipient HHs and will visit these homes for hang up messages and hole index measuring. They will also verify that the HHs were in fact eligible for the additional nets.

Reporting forms

- Monthly reports from net coupon holders to county coordinator
  - # of coupons given out (stubs in coupon booklet)
  - # of days under the tree (as verified by Boma Executive Chief)
- Monthly report from Store Keeper to BHCs
  - Number of nets received from county
  - Number of coupons received
  - Number of nets issued
  - Number of coupon books issued
  - Requisition forms (to County Coordinator, who sits on BHC)
- County Coordinator / BHC to State health dept
  - Total nets delivered to payam
  - Total # of LLINs collected
  - Total coupon booklets issued to net coupon holders
  - Total coupons issued by net coupon holders

Focus group discussions

Mid and end term focus group discussions (FGDs at 5 monthly intervals with a wide range of stakeholders e.g. HH, payam level, health committees etc and analysis of monthly reports below.

Systems Strengthening and Sustainability

NetWorks recognises that sustainability is a critical measure of project success. The ability of the Ministry of Health to take over implementation of the proposed malaria control activities is contingent on their level of involvement, ownership, and the quality of the capacity building carried out. Under this study, NetWorks will make a conscious effort to develop organisational capacity in this area by engaging systematically with the Ministry of Health and other stakeholders at all levels. At GoSS level Malaria Consortium is an active member of the Malaria Technical Working Group. At State level Malaria Consortium coordinates closely with the State Ministry of Health through direct bilateral contacts and through active participation in the Health and Nutrition Coordination meetings. At county level Malaria Consortium makes concerted efforts to engage County Health Departments in actual project implementation including training, supportive supervision, and monitoring and evaluation. Table 2 shows the various areas of capacity building under this study, and who will benefit from.

Table 2: Areas of capacity building and systems strengthening

Role	Areas of capacity building
County coordinator	General management, coordination, logistics, reporting, facilitating meetings
Boma Health Committees	Reporting, supervision, and governance skills, as well as finalised ToR and a way for community to evaluate effectiveness. NetWorks will also facilitate meetings between the BHCs and county health department
PHCC Store Keepers	Warehousing, supply chain management and record keeping skills
Net Coupon Holders	Communication and increased skills to work effectively at the community level
Existing community mobilisation groups	Communication and health education at the community level

Management and Oversight

This project will involve management and oversight at several levels, including from Kampala and Baltimore, Juba and the field level and will include both internal and external oversight functions.

Implementation of the project will be led by the Project Officer, who will receive management support from Malaria Consortium's NetWorks Programme Coordinator, based in Kampala. In addition to overseeing the smooth implementation of the study, the Project Officer will be responsible for building the capacity of and supporting the County Coordinator. They will also liaise with the central MoH and other stakeholders, supervise the M&E activities and coordinate the

logistics from central to county level. Specialised technical support will be provided by Malaria Consortium's M&E Director and regional Technical Specialists, as required. The internal oversight function in Juba and day to day management of the Project Officer will be carried out by Malaria Consortium's Country Director for South Sudan. Support will also be provided by the Logistics Coordinator, who will ensure good procurement practice is adhered to, and the Finance Manager, to enforce strong financial controls.

External oversight will be provided by the State Ministry of Health and the County Health Department.

Organisational Capacity

At the request of the GoSS MoH, Malaria Consortium established its office in Juba in 2006. Since then the organisation has established field implementation capacity in Aweil, Bentiu, and Malakal. All our Southern Sudan Offices have considerable experience implementing malaria control programming. Malaria Consortium has developed a strong reputation for delivering high quality technically sound interventions in challenging operating environments.

Since 2007 Malaria Consortium has supported the distribution of over 800,000 LLINs in Southern Sudan across several States. The vast majority of these LLINs have been distributed through campaigns with a smaller number being distributed through routine channels such as ANC. NetWorks is therefore perfectly placed to pilot and make recommendations for the potential scale up of an innovative continuous distribution system in this region.

Implementation and Timeframe

Implementation of the study will be carried out by the following partners:

- GoSS MoH: Will provide political supervision, coordination and external oversight. They will also be involved in the interpretation and dissemination of results.

- JHU CCP: will provide advice and support for the communications aspects and support Malaria Consortium through the whole process to ensure its success.

- Malaria Consortium: will take the lead on designing the study, supervising its implementation, including coordinating with any in-country implementing partners, and assessing its impact

Preliminary results will be shared between all partners for their input. The final report will be developed by Networks, based on the input from all partners.

Anticipated time line:

	2011									2012								
	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
Initial assessment																		
study design																		
Sourcing of LLINs																		
Ethical approval																		
Rapid assessment to determine location																		
Baseline survey																		
Positioning of LLINs																		
Implementation																		
FGDs																		
End line survey																		
Final report and recommendations																		