Figure 1: ITN campaign delivery decision matrix based upon assumed constant delivery through ANC/EPI including outreach systems

Existing Coverage with Any Mosquito Net* [22]	Existing ANC coverage		
	>80%	61-79%	<60%
>20%	1. ANC / EPI, outreach 2. (re)treatment campaigns	1. ANC / EPI, outreach 2. (re)treatment campaigns 3. Combined measles campaigns	1. ANC / EPI, outreach 2. Combined measles campaigns 3. (re) treatment campaigns
11-20%	1. ANC / EPI, outreach 2. (re) treatment campaigns	1. ANC / EPI, outreach 2. Combined measles campaigns 3. (re)treatment campaigns	1. ANC / EPI, outreach 2. (re)treatment campaigns 3. Combined measles campaigns
<10%		1. ANC / EPI, outreach 2. Combined measles campaigns	1. ANC / EPI, outreach 2. Combined measles campaigns

The matrix is based on the assumption that:
a) for all countries, whatever their context, **establishing delivery of ITNs through ANC, EPI and outreach systems is a priority**; this is the rationale of the action plan as a whole
b) current ANC attendance will then determine the priority to be given to delivery of ITNs through vaccination campaigns, where ANC attendance is high the need for campaigns is low, and where attendance is low the need for campaigns is high
c) coverage with mosquito nets will determine the relative usefulness of (re) treatment campaigns

This means that for those countries within the >80% ANC attendance (for example the United Republic of Tanzania with 94% ANC attendance Annex 2 Table VII), national level combined campaigns are not likely to be a priority once delivery through routine systems is established. However, in countries where ANC attendance is low (<60%), combined campaigns will be an important delivery strategy until ANC attendance increases. Note that the interpretation of the table must be influenced by further experience in whether regular reliable provision of ITNs through ANC increases ANC attendance rates. The caveat to this matrix is that **these decisions need to be made at the district level** as coverage of ANC varies greatly from district to district and national level data often hides wide disparities.

The impact of (re)treatment campaigns on coverage with ITNs is directly dependent upon the current coverage levels[5], and will increase with increasing coverage. Currently whilst the majority of the nets in households are either untreated or conventional ITNs estimates may simply be taken from the coverage of any net. However, as the proportion of LLINs in households relative to other nets increases this should be included in the equation.

As an example, we place countries in position in the matrix (Figure 2) dependent upon their current ANC attendance and coverage with mosquito nets. Their position in the matrix will indicate the most appropriate mix of delivery strategies, again assuming that ITNs are delivered through ANC as a priority. This matrix is not designed to be prescriptive, but is designed to be fluid with countries moving between the sections of the matrix as their ANC attendance and net

[5] We use household ownership rather than use in children under five years

coverage changes. The optimum mix of delivery strategies will vary accordingly. It is interesting to note that the countries with the largest populations that are Nigeria, DRC and Ethiopia are the least advantaged in terms of both attendance at ANC and current mosquito net coverage.

Figure 2: Country positions in the ITN delivery channel decision matrix

Existing Coverage with Any Mosquito Net* [22]	Existing ANC coverage		
	>80%	61-79%	<60%
>20%	Benin Comoros The Gambia Kenya Madagascar Malawi Namibia Sao Tome and Principe Senegal Togo United Republic of Tanzania Zambia	Burkina Faso CAR Congo Equatorial Guinea Eritrea Guinea Guinea Bissau Liberia Mauritania Sierra Leone Sudan (north)	Chad Mali Niger Somalia
11-20%	Cote d'Ivoire Gabon Ghana Mozambique Uganda Zimbabwe	Angola Cameroon Nigeria	DRC Sudan (south)
<10%	Burundi Rwanda Swaziland		Ethiopia

* Excluding LLINs

These tools should be used at the national level with districts being placed into the matrix, in the same way as countries in our example, so that a picture of priority needs across the country can be easily identified.

10. Monitoring methods and systems

We present a preliminary overview of the major indicators and methods for monitoring the successes of scale-up strategies and the processes by which they are implemented. At this stage we concentrate on monitoring of achievements at the outcome level. Indicators and detailed methods for outputs through each delivery channel will be presented as plans are taken to the next stage of development.

10.1 Outcome Indicators

Priority coverage indicators for household surveys have been recommended by RBM and form the basis of the Abuja targets[1] (Table 5). These three priority indicators are "the proportion of households with at least one ITN"; "the proportion of children under five years who slept under an ITN the night before the survey"; and "the proportion of pregnant women who slept under an ITN the night before the survey". The use of standard indicators and methods allows for

comparisons of achievement within different countries and different contexts. Where indicators or methods are non-standard these comparisons are not possible. It is important that the operational definition of the indicator is stated in explicit detail, as this may vary even when the stated indicator has the same name. For example, there were problems in equating the successes of the combined measles campaigns in Ghana and Zambia when use was assessed amongst index children in a household[33] rather than amongst the general population of children, thereby using a different denominator.

Many coverage surveys give surprisingly little attention to information on the source of nets and ITNs, although this information is often quite easy to collect, and is of great value in indicating which delivery systems are reaching (and failing to reach) which groups of people.

Current coverage of ITNs and untreated nets varies widely both across regions/provinces and across socio-economic groups. Achievements towards reducing the inequity of coverage need to be assessed. The simplest way in which this can be done is to present (disaggregate) the above indicators across geographic regions and across socio-economic groups and by delivery system.

Table 5: Outcome indicators, denominators and levels of disaggregate

Indicator	Denominator	Disaggregate
1. Proportion of households with at least one ITN	Number of all households sampled	Province/region Urban/rural Socio-economic quintile Delivery channel Net type
2. Proportion of children under five years who slept under an ITN the night before the survey	Total number of children under five years in the sample	
3. Proportion of pregnant women who slept under an ITN the night before the survey	Total number of pregnant women in the sample	
4. Proportion of nets that are untreated, conventional ITNs and LLINs	Total number of nets in the sample	

Only one study in the United Republic of Tanzania has assessed the relative successes of more than one delivery strategy for ITNs in the same area at the same time[43]. Other studies have generally taken baseline coverage of ITNs and then compared this with post-implementation coverage after various time periods and assumed that any changes in coverage are due to their selected implementation strategy. It should now be a priority to adapt household surveys so that they are able to provide data on the relative proportions of coverage that were achieved through different delivery channels. This has recently been found to be possible by the addition of one question on the source from which the ITN/net was obtained, together with careful planning of response categories adapted to delivery strategies in place nationally[44].

Identification of the types of nets/ITNs present in households is important for strategic planning. The use of (re)treatment campaigns as a method of increasing and sustaining ITN coverage is outlined above. If 100% of the nets in households are LLINs there is no added value from a (re)treatment campaign. It is necessary therefore to know of the nets in households the proportions that are untreated, conventional ITNs and LLINs. Identifying the type of net may also provide insights into the delivery system that provides ITNs to the household.

10.2 Methods for measuring outcomes

The outcome indicators presented above are measured through household surveys. These are usually the DHS[36] and MICS[38] that are conducted about once every five years, or they may be special surveys conducted on an *ad hoc* basis such as the NetMark surveys[5] and the RBM baseline surveys. Several MICS are underway in 2005 and it is not yet clear when there will be a further round of these surveys. DHS are planned in 10 out of the 42 countries between 2006 and 2008.

This leaves 32 countries without planned surveys for assessing ITN coverage. The Malaria Indicator Surveys (MIS) have recently been developed by the RBM Partnership Monitoring and Evaluation Reference Group (MERG) to provide a standard package of tools for stand alone malaria surveys. These may provide data on ITN coverage but plans for country implementation of the surveys are not yet formulated. In order to assess the scale-up of delivery of ITNs to target groups it is essential that plans are formulated for national household surveys at least every two years.

Disaggregates of coverage by province/region and urban rural area are provided in the national household surveys presented above. These surveys do not provide data on administrative levels below that of province/region. Ideally we would like to have this data at the district level as there may be significant inequities in coverage within provinces and between districts. This level of data would be available through EPI cluster surveys, assuming that ITN questions were added to these surveys. This has been done in Timor Leste (nets not ITNs) and more recently in Ghana. There are lessons to be learnt from each of these experiences and some of the possible problems were outlined. But these surveys provide a promising way forward for expanding the number of surveys from which data on ITN coverage is available together with providing data at the district level.

Both the DHS and the MICS use principal components analysis (PCA)[45,46] to construct an asset index using data collected on a range of household assets. This asset index is then used to construct socio-economic quintiles from the poorest households through to the least poor. The DHS are increasing the number of indicators that are presented disaggregated by socio-economic quintile. Where ad hoc surveys are undertaken the questions asked and methods used to construct quintiles are readily available.

The WHO Regional Office for Africa (AFRO) has suggested creating an information system for monitoring of child survival interventions by adding malaria and Integrated Management of Childhood Illness (IMCI) to the EPI single page form which is used for monthly reporting at district level. The form has been renamed as the "Integrated Child Survival Form". A method for estimating coverage has been suggested by adding questions on ITN use the night before the EPI visit to the section on the number of children vaccinated. The denominator used to estimate coverage would then be the number of children immunized. The comparability between this estimate and that of population coverage as assessed through survey methods will depend upon EPI coverage, with comparability higher with increasing EPI coverage.

In a few cases, programmes have used records of the numbers of nets delivered, divided by the size of the intended recipient population, to estimate coverage. Recent surveys in Cambodia suggest that this is not a reliable approach.

10.3 Monitoring of outputs

The indicators for monitoring of outputs and the corresponding methods will vary depending upon the delivery channel used. At a minimum they need to measure the numbers of ITNs delivered through each system. Within public sector delivery channels this may be as basic as the number of ITNs that leave the central distribution point, but much more useful and informative would be a system of tracking the ITNs through the various stages in their delivery.

Logistic information on ITNs, retreatment kits, and malaria and IMCI first and second line drugs have been added to the information collected in EPI vaccines. At the output level information is collected on the number of women receiving ITNs and IPT at ANC.

Tracking the numbers of nets and ITNs delivered through the commercial sector is more difficult and we may be better focussing on the outcome level and using identification of nets and their source through household surveys as presented above.

10.4 Delivery costs

The dearth of data on the cost of delivering ITNs through the alternative delivery channels and at different scales has been emphasized in this document. The methods used and the definition of 'cost per ITN/net delivered' vary enormously making comparisons impossible. We suggest that as a step-forward in resolving this problem a standard table of costs is used to collect the cost data that would include capital costs (i.e. ITNs, vehicles, storage), recurrent costs (i.e. insecticides, delivery costs, fuel, IEC, M&E, training etc) and allowing economies/diseconomies of scale.

11. Operational research questions

Developing this plan was restricted by both a lack of basic health systems information as well as technical and cost information. Listed below are some priority questions the answers to which will improve forecasting the number of ITNs needed to cover the target population, the systems through which they will best be delivered and the costs of delivery at scale.

11.1 Technical and epidemiological questions

- What is the effective life of the netting fabrics?
- What are the relative benefits of covering the different target groups (pregnant women, children under 1 year and children 1-4 years) with an ITN? And how can these be assessed?
- If we have to choose between giving an ITN to the mother through ANC or to the child through EPI, which option has greater health benefit?
- What is the public health value of individual treated and untreated net use compared to no net use?
- What is the shape of the relationship between coverage and the strength of the mass effect?
- How do different levels of insecticidal activity measured in conventional entomological tests correspond to epidemiological protection?
- How can we develop a simplified functional classification of local nets which are made of a wide variety of fabrics so that our increased investments develop and strengthen local suppliers?

11.2 Systems based questions

- What proportion of pregnant women who attend ANC also take their children for full EPI vaccination?
- Does the delivery of ITNs (free or highly subsidized) through ANC and/or EPI increase attendance and therefore coverage?
- If attendance at ANC and EPI is increased, to what extent and in different contexts is it increased?
- What are the contextual factors that influence the level of increase?
- How far can we increase coverage of ITNs through EPI outreach?
- What are the logistical and programmatic hurdles to overcome in a massive scale-up of ITNs delivered through routine services?

- What are the human resource constraints in this scale-up and how can they be resolved?
- What is the best way to reach those not accessed through ANC and EPI? And what factors affect this?
- What are the factors that will promote sustainability delivery through the alternative channels?
- To what extent does giving ITNs to target groups through routine services crowd out the commercial sector?
- Does this tendency differ between routine and campaign based delivery systems?
- Is this exacerbated is several ITNs are given to each family or child?
- Are existing local suppliers and textile distribution systems better than large importing international net manufacturers at providing rural availability and responsiveness to increased demand created through voucher schemes?
- What degree of commercial availability is necessary before campaigns can be designed around the use of vouchers?
- Do voucher schemes inspire more or less cheating than giving ITNs away directly?

11.3 Household level questions

- Who uses ITNs delivered through ANC?
- Do pregnant women use the ITN during pregnancy, or do they save it until their baby is born?
- What proportion of pregnant women sleep under the ITN with children?
- Who uses the ITN when the child starts to sleep separately from the mother as it gets older?
- What happens to a second ITN when given to a pregnant woman whose children are already sleeping under an ITN or an untreated net? Who uses the new ITN and what factors influence this?

11.4 Costs

- What are the relative costs of delivering ITNs through alternative channels?
- How do these costs vary with scale?
- Does the relative cost of delivery through alternative channels vary depending upon scale (i.e. dependent upon relative economies/diseconomies of scale)?
- What are the relative costs and consequences of alternative strategies for reaching remote or disadvantaged populations?
- What is the cost of national (re)treatment campaigns and what are the factors that affect this?

12. Priorities for Action

The process of compiling this document has highlighted several priorities for action to aid in ensuring strategic use of the funds and delivery channels available, so that coverage of the target groups with ITNs can be achieved in the most efficient and equitable way depending upon the context.

1) Sustained routine delivery of ITNs through ANC should be the priority. Donor funding needs to be channelled in this direction. Whilst this process is underway, combined delivery of ITNs with measles campaigns presents an efficient and equitable way of achieving rapid scale-up in the short-term, for those who are part of the target group at the time of the campaign. Strategic planning between and within countries is needed to ensure maximum equity and minimum overlap in areas and groups covered by catch-up campaigns.

2) Household surveys are the method of providing information on outcomes; they are infrequent and only provide information down to the regional/provincial level. Household surveys are needed every two years at a minimum and ways of obtaining more frequent district level data are needed. Programme management tools such as the adapted Integrated Child Health Forms need piloting and their usefulness in providing such information needs assessing.

3) Information on the costs of delivering ITNs through the different systems is scant with great variability in the costs included. Standard costing methods are needed so that true comparisons may be made.

4) There is a need for both guidelines on and technical support to countries in strategic planning of delivery of ITNs.

Annex 1 SECOND HIGH LEVEL MEETING REPORT

UNITED NATIONS FOUNDATION

MEMORANDUM

TO : Participants at the High-Level Donors Meeting on Scaling-Up Insecticide Treated Nets, 07 September, Paris, France
FROM : United Nations Foundation (A. Gay, M. Kimble, K. Starace)
SUBJECT: Summary of Presentations and Discussions
DATE : October 12, 2005

SUMMARY

1. Co-Chairs, Dr A. Asamoa-Baah, Assistant Director-General Communicable Diseases, WHO, and Mr. Brad Herbert, Chief of Operations, Global Fund, introduced the meeting by emphasizing the importance of having such a sustained forum on scale-up and by welcoming new attendees from around the world. New attendees for this meeting included: Ministers of Health from Kenya, Malawi, Nigeria, and Sierra Leone, representatives from the Bill and Melinda Gates Foundation, Clarke Mosquito Control, Siam Dutch, UNFIP, CDC, World Economic Forum, WHO/AFRO, WHO/EPI, and WHOPES.
2. The purpose of the September 7th meeting in Paris was to move forward the agenda for scaling-up LLIN coverage among vulnerable groups in Africa and to identify additional steps that must be taken over during the next 12-24 months to achieve the full coverage goal by 2007-2008.

3. For simplicities sake, a record of the minutes has been broken down into the following 3 categories:

   A PROGRESS MADE SINCE JUNE
   B KEY DISCUSSION POINTS
   C NEXT STEPS FOR THE HIGH-LEVEL GROUP

A PROGRESS MADE SINCE JUNE

4. Organizations reported on particular progress related to agreed-upon assignments from the June 23rd Geneva meeting:

5. The Global Fund has set into motion new practices designed to facilitate LLIN direct purchase to Principal Recipients (PRs). A joint letter from WHO, GFATM and UNICEF was sent to all Principal Recipients in August 2005 informing them of this new purchase option, offering template and guidance materials and recommending that countries make the switch to LLINs and get orders in as soon as possible. In Geneva, both policy and implementation support was provided to GFATM portfolio managers. GFATM is building internal systems to improve data collection and reporting capacity (including the Price Reporting Mechanism). As well, detailed country level data on LLIN demand/orders provided to MMSS. See, *"Joint Mosquito Net Letter (Aug)"* and *"GF LLIN Procurement Considerations"*

6. UNICEF also sent letters to CCMs requesting forecasts for total country LLIN requirements out to the next 3 years. UNICEF said it already had a timeline for completing orders, with US$76 Million already registered in the books (15M LLINs - 2006).

7. RBM/MMSS distributed their first quarterly report on LLIN supply and demand and are awaiting input back from partners.

8. Canadian CIDA together with United Nations Foundation will fund a Malaria Integration Project Manager role at GFATM, to be set up as 2-year position.

9. In response to its task, the World Bank announced that the IFC has engaged a consulting firm tasked with finding opportunities to harness the private sector in combating malaria in Africa. The study will be run out of its Johannesburg Office and will focus on: (1) production and re-treatment of ITNs; (2) capital investment; and (3) distribution and logistics. It's unclear when this study is expected to be finished.

10. WHO strategy paper for LLIN scale-up in Africa was presented at the September 7th meeting.

B KEY DISCUSSION POINTS

Supply and Industry:

11. Manufacturers confirmed 2006 capacity figures:
    - Clarke Mosquito Control (Phase II, WHOPES) forecast 1.2 Million/year for 2006 without additional investment;
    - Vestergaard, doubling in the next nine months, will be targeting 3.5 Million (approximately 48M/yr) for 2006;
    - Sumitomo stated that they produced 2M/yr in 2004 and 7M/y up to September 2005; they will be scaling-up production to 15M at the end of 2005 and 24M in 2006 via 11 factories;
    - Bayer (100 million KO-Tabs 1, 2, 3, with a lead time of less than 4 weeks) offered bundled regular nets + retreatment tablets (not long-lasting) for a discounted price in order to meet demand. (It was agreed that a realistic strategy for retreatment every six months would be needed in order to support such an approach.)

12. Manufacturers pointed out that total 2006 capacity equals 76 Million, yet demand appears to be estimated at approximately 50 Million annually for the most vulnerable. (It was made clear that Asia and commercial market numbers were not included in this conversation). The difference between the various Demand figures and what the Private Sector called a "production gap" was an important discrepancy that needs to be clarified. There was agreement only on the fact that LLIN Demand figures require further verification and validation by all partners.

13. When estimating its own capacity for 2006 - an increase of three times monthly capacity - UNICEF pointed out that more supply in the market may actually increase lead-time, as, currently, UNICEF estimates an average of 2-3 months for delivery plus 10 months for production.

14. Private Sector claimed to no longer see value in private procurement agents, because "they come in and act as agent for Global Fund and yet they have exclusive agreements with certain factories".

15. The Global Fund presented, *"Update on Financing for Insecticide Treated Nets"* to update the group on current sources of financing allocated for ITNs as well as recipient profiles (large and small grants) related to ITN and LLIN purchases. GFATM finances over 60% of global ITN demand of which 80% are long lasting.

16. The MMSS quarterly report (now on the web, updated quarterly and sent to all the countries) was summarized in a presentation entitled: *"A Situation Report on Insecticide Treated Nets (ITNs) in AFRICA: Demand, Supply & Funding"*. Regarding its financial sustainability, MMSS said human resources were still needed and funding proposals are being reviewed.

17. In response to the MMSS report on capacity, the Private Sector said it is happy to report in a timely, coordinated fashion, but, in some cases, disputed the figures. "Double reporting" and "the serious implications of confidentiality" were maintained as ongoing barriers to quality and timely information. It also recognized that MMSS is working with constrained financial and human resources. MMSS reiterated that partners are both the sources of data and responsible for funding.

18. In response to whether or not manufacturers can speed up production time, the Private Sector responded that the dynamics are difficult to convey, and de-bottlenecking the delivery systems and the policy impediments is all they could do.

Reaching the poor with ITNs:

19. There is an inadequate supply of LLINs on the global market to make use of all distribution opportunities for LLINs linked to measles/polio campaigns in 2006/07. Ethiopia, Kenya and Nigeria, for example, were identified as large population countries with planned distribution opportunities in 2006, and unmet LLIN needs.

20. For an update on the Measles Immunization campaign, UNF`s Andy Gay and WHO's Dr. Deo Nshimirimana presented a detailed 2006 plan. Planning for any Measles/Malaria campaign will take approximately 9 months. Partners called for countries to realize their plans. It was estimated that 28M nets are needed by March 2006. Three countries will need 9M nets for September to December campaigns in which case, they will need to arrive in country by August 2006. Emphasizing the need for early decisions on interventions and financing, the Partnership said countries could do net distribution, although not all would be long lasting (unless donor commitments were put in place right immediately).

21. Clarke Chemical asked that if approved LLINs were not available would buyers consider using non-approved LLINs to supply longer life technology without having to wait for the WHOPES completion. WHO said that it thought it would be safer to use approved nets, even if other international interventions didn't require it. Global Fund said that they would work with country requests. Vestergaard was willing to create a pipeline based on partial shipment and a credit line.

22. Discussions focused on Nigeria and Kenya and the logistics of receiving and distributing such large orders (i.e. 140 Containers for 3.4 Million LLINs). The need for changes in country procurement practices, such as allowing for partial delivery was a unanimous suggestion

from the Private Sector. The group explored various issues surrounding the subject where countries discussed feasibility, shipping routes and existing logistical obstacles, concluding with the suggestion that countries work closer with suppliers and procurement agents to improve the situation.

23. GFATM re-stated its intention to reduce transaction costs to recipient countries and also said that if orders can be recorded now for 2007 there should be no problem. ARC pointed out that if money is required upfront that might be more of a problem. Determined to work this out with "mixed strategies or revised plans as things are better developed", GFATM is aiming to be flexible enough to work within such parameters.

24. The Private Sector and countries reiterated their approval of the discussed direct payment models and appreciated the Global Fund's facilitation, but stressed that such agreements are at the discretion of the two procuring parties and therefore requested more information on the process and continued engagement in the policy discussion.

25. UNICEF presided over a presentation entitled, *Linkages: Expanding the Number of Opportunities to Distribute ITNs via Other Delivery Approaches.* UNICEF also said it would be working more closely with other UN agencies for net distribution, especially World Food Programme.

26. Kenya's Minister of Health emphasized the importance of providing effective and prompt treatments immediately for those who are infected; the need to change the treatment (i.e. switch to ACTs and LLINs) but to adopt strategies for non-treated nets so as not to miss a rainy season; and to engage the entire community in the war on malaria.

27. The Ethiopian Health Minister, working towards a goal of full coverage by 2007, admitted that political commitment alone would never achieve what full financing can. Instead of relying solely on campaigns - "distribution is not the problem, lack of nets and achieving sustainability are the issues". Ethiopia is as focused on developing and strengthening health systems (e.g. installing health posts in each village), while asserting that DDT "is a must".

28. The Ministry of Health in Nigeria will use a mix of strategies for 2006, including private sector facilities (i.e.: ITN Awareness Schemes, "company mandates to provide ITNs for employees and private sector distribution outlets"); free ITNs for certain behaviors (i.e. clinic visits); community-based distribution models; furthering the Exxon Mobil voucher scheme; ITNs for use in all public and private health facilities (in-patients); and, the Measles campaign, which is ongoing in 20 Northern states and in the South by June 2006.

29. Malawi - In 2000, the country began distributing heavily subsidized ITNs. So far, 3.5 million nets have gone to children under five. Total ITN coverage is 43% (55% coverage for children under five). Some districts have reached their targets, while 6 more may reach them shortly. The widespread use of ITNs has played an important part in the decrease of infant mortality and under five mortality.

30. Dr. Allan Schapira of the World Health Organization outlined its plan for ITN scale-up with a presentation entitled *"Attaining Universal Coverage: Protecting Pregnant Women and Children under 5 in Africa with ITN.* This presentation covered a wide range of issues and discussions, namely re-framing the total Demand number by predicting it out over future years, across various modes of delivery. Again the institutional discrepancies around global demand - and the timelines needed to reach the most vulnerable - were evident, although some of this inconsistency might be explained by each organizations different understanding

of supply chain management, forecasting and lead time. Discussions evolved surrounding scale-up and scale down, reporting and MMSS strengthening, the black market and potential market saturation.

Quality:

31. WHOPES re-emphasized its role as strictly a *recommendation* facility, detailing the ongoing work on streamlining that is being done by various committees. WHOPES recommended to the group that while it is important to speed up processes at a time of great momentum it's even more critical to do things correctly.

32. Within the context of distribution over the next few years and potential market saturation, counterfeits were deemed "a true problem" by various organizations, especially the US and the Private Sector. Pointing to WHOPES approval again as the most crucial quality control tool, instances where black marketers were/are falsifying a long lasting promise we cited. Left unchecked, this could lead to serious damage to the sustainability of the market, and the fight against malaria in general.

33. The Private Sector requested status on the conversations previously initiated with WHOPES to allow 3rd parties to oversee product standards.

34. In response the US President's Initiative on Malaria presentation, organizations asked if the US would guarantee safe management of insecticides. The US has requested that 3% of monies be put aside for insecticide management. The group wondered if this was enough.

35. The Global Fund recommended that issues of quality assurance move towards performance-based financing so that eventually there would be a 'gold standard' in assessment.

C NEXT STEPS FOR THE HIGH-LEVEL GROUP:

36. Letters will go out to all Ministers of Health (similar draft to what was sent to the PRs/CCMs) in those countries receiving Global Fund grants to inform them of the new policies affecting procurement and direct purchase for LLINs.

37. By the end of the Measles session financing gaps for campaigns were still not completely identified and as a result certain distribution opportunities may be missed. A summary of all campaign opportunities for LLIN distribution from 2006-2008 will be done jointly by WHO/UNF to summarize demand for that timeframe. From there, funding available by country needs to be identified and confirmed and communicated to countries and donors. A timeline will be set by the Partnership.

38. Comments are needed from Partners on the WHO strategy paper for LLIN scale-up in Africa.

39. More information and coordination was requested regarding an end of year WHOPES meeting.

40. At several points in the meeting, various organizations, quite urgently, recommended that the malaria community and specifically the High Level group represented here work to develop a global task force that would carry this momentum forward on coordination. It was widely recommended that WHO and/or RBM take the lead to put into place an agreement

by major principal financers on harmonization and financing, technical standards and norms as well as overall integration.

41. Action steps were clearly required although not identified with the exception of the RBM taking the lead on the continuation of this High Level series, in Cameroon in November, by utilizing and synchronizing the work of various and relevant Working Groups.

Annex 2 Table I: Total and vulnerable populations at risk of any type malaria, by country

Country	Total Population (2004)	% Population at any risk of malaria*	Population for Any Risk Malaria (2004)			
			Total	Under 5 Years	Under 1 Years**	Pregnant Women
Angola	14,077,616	99	13,914,035	2,769,464	553,893	731,463
Benin	6,918,356	100	6,918,356	1,192,417	238,483	288,798
Burkina Faso	13,393,456	100	13,393,456	2,627,623	525,525	643,388
Burundi	7,067,900	85	5,995,684	1,055,748	211,150	266,468
Cameroon	16,295,931	98	15,965,547	2,410,638	482,128	568,108
CAR	3,911,550	100	3,911,550	621,751	124,350	149,060
Chad	8,853,837	100	8,853,826	1,698,463	339,693	431,975
Comoros	790,094	100	790,094	126,312	25,262	29,187
Congo	3,818,352	100	3,818,352	712,270	142,454	169,808
Cote d'Ivoire	16,896,884	100	16,896,360	2,516,295	503,259	602,978
DRC	54,416,778	94	51,262,243	10,021,151	2,004,230	2,596,828
Eq. Guinea	507,416	99	504,787	88,883	17,777	21,887
Eritrea	4,296,702	99	4,255,791	729,098	145,820	170,494
Ethiopia	72,419,781	64	46,082,953	8,064,430	1,612,886	1,976,959
Gabon	1,351,399	96	1,303,954	184,801	36,960	41,461
Gambia	1,462,434	100	1,462,434	223,776	44,755	52,629
Ghana	21,377,090	100	21,377,090	3,017,784	603,557	682,419
Guinea	8,619,992	100	8,619,992	1,479,060	295,812	372,174
Guinea-Bissau	1,537,710	100	1,530,353	299,948	59,990	77,009
Kenya	32,419,671	78	25,215,377	3,620,098	724,020	824,614
Liberia	3,486,865	100	3,486,865	667,351	133,470	175,218
Madagascar	17,900,935	96	17,212,268	2,991,246	598,249	719,037
Malawi	12,337,267	99	12,245,854	2,245,596	449,119	551,603
Mali	13,408,598	100	13,403,952	2,663,430	532,686	672,359
Mauritania	2,980,358	100	2,974,978	511,884	102,377	125,281
Mozambique	19,182,366	100	19,153,158	3,178,614	635,723	798,449
Namibia	2,010,788	41	820,603	123,312	24,662	27,507
Niger	12,414,998	100	12,400,752	2,642,742	528,548	688,747
Nigeria	127,117,325	100	127,111,873	21,179,913	4,235,983	5,000,179
Rwanda	8,481,216	67	5,651,046	1,016,543	203,309	251,095
Sao Tome & Prin.	164,619	100	164,619	25,030	5,006	5,493
Senegal	10,339,004	100	10,339,004	1,663,549	332,710	385,767
Sierra Leone	5,168,349	100	5,167,596	969,507	193,901	261,005
Somalia	10,312,172	99	10,203,196	2,086,229	417,246	534,793
Sudan, North	34,333,410	99	33,898,177	4,866,233	973,247	1,126,224
Sudan, South	-	-	-	-	-	-
Swaziland	1,082,961	77	829,765	125,171	25,034	28,664
Tanzania	37,671,095	96	36,211,072	5,975,153	1,195,031	1,428,963
Togo	5,017,293	100	5,017,293	821,413	164,283	193,901
Uganda	26,699,283	93	24,843,791	5,166,334	1,033,267	1,266,953
Zambia	10,924,255	99	10,821,156	1,908,917	381,783	459,763
Zimbabwe	12,932,074	84	10,887,513	1,581,507	316,301	351,990
TOTAL	664,398,180		614,916,765	105,869,684	21,173,937	25,750,698

* MARA/ARMA, 2005

**Crude estimate: population under five years divided by five

Source:

1) UNPOP. World Population Prospects: 2002 Revision Population Database. http://esa.un.org/unpp ed: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, 2003.

2) Population projections for 2004 were obtained courtesy of John Miller, WHO

3) Population of pregnant women calculated as number of live births minus number of maternal deaths in pregnancy, courtesy of WHO

Annex 2 Table II: Population projections for pregnant women and under five year olds (2006-2010), by country

	No. pregnant women					No. <5s					No. <1s
COUNTRY	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010	2004
Angola	749,261	772,195	795,257	818,475	841,886	2,944,203	3,023,788	3,099,562	3,173,390	3,246,752	657,275
Benin	290,611	298,189	305,881	313,692	321,621	1,242,082	1,267,486	1,292,598	1,316,650	1,339,039	310,276
Burkina Faso	660,781	680,805	701,451	722,711	744,580	2,769,306	2,843,100	2,918,037	2,993,154	3,067,754	539,029
Burundi	297,411	307,785	318,266	328,661	338,831	1,147,770	1,200,615	1,255,445	1,309,223	1,359,595	248,957
Cameroon	543,201	551,233	558,998	566,552	573,944	2,438,121	2,448,289	2,455,708	2,459,847	2,460,426	513,471
CAR	147,432	149,597	151,875	154,206	156,544	629,032	634,078	639,754	645,643	651,409	138,326
Chad	444,048	457,209	470,706	484,528	498,667	1,800,998	1,850,463	1,898,469	1,944,805	1,989,356	407,029
Comoros	28,404	29,180	29,963	30,749	31,535	130,851	132,888	134,701	136,221	137,402	26,283
Congo	174,173	179,282	184,655	190,190	195,812	749,467	768,351	787,299	806,175	824,873	157,659
Cote d'Ivoire	586,058	595,227	604,441	613,633	622,751	2,560,641	2,579,784	2,596,187	2,609,121	2,618,087	605,489
DRC	2,660,780	2,738,882	2,818,208	2,899,073	2,981,695	10,700,501	10,985,925	11,243,840	11,485,757	11,720,421	2,343,580
Eq. Guinea	21,832	22,391	22,955	23,526	24,102	93,078	94,818	96,379	97,845	99,277	19,124
Eritrea	170,928	177,022	183,072	188,938	194,521	767,463	786,355	804,330	820,610	834,661	151,708
Ethiopia	1,982,985	2,030,720	2,079,370	2,129,049	2,179,828	8,355,286	8,505,687	8,659,056	8,814,874	8,972,458	1,807,085
Gabon	39,278	40,017	40,778	41,548	42,317	186,168	186,754	187,318	187,894	188,504	38,378
Gambia	50,155	51,346	52,529	53,700	54,856	228,659	230,661	232,338	233,661	234,618	48,370
Ghana	656,662	670,137	683,617	697,078	710,499	3,082,803	3,107,942	3,128,423	3,144,669	3,157,089	642,437
Guinea	360,325	369,596	379,708	390,121	400,431	1,518,533	1,550,251	1,585,727	1,619,560	1,647,826	352,474
Guinea-Bissau	77,601	79,864	82,177	84,549	86,985	316,069	323,191	329,986	336,836	344,022	68,754
Kenya	785,223	795,360	805,427	815,321	824,967	3,632,896	3,636,567	3,638,240	3,637,931	3,635,662	949,155
Liberia	180,232	185,350	190,307	195,278	200,394	710,808	729,416	746,374	762,426	778,153	144,621
Madagascar	713,427	733,309	753,553	774,154	795,106	3,102,539	3,158,909	3,215,276	3,271,095	3,325,926	630,674
Malawi	538,142	548,224	558,437	568,853	579,525	2,279,320	2,299,884	2,322,710	2,347,644	2,374,537	501,078
Mali	703,829	726,459	749,987	774,342	799,471	2,839,621	2,931,886	3,024,816	3,115,983	3,203,649	577,369
Mauritania	125,837	129,409	133,007	136,631	140,285	537,869	549,952	561,267	571,658	581,032	112,920
Mozambique	771,168	782,974	794,691	806,404	818,171	3,245,376	3,267,382	3,284,032	3,297,907	3,310,901	713,223
Namibia	24,761	24,983	25,189	25,385	25,574	120,635	119,099	117,570	116,193	115,077	22,491
Niger	708,665	734,547	761,244	788,773	817,159	2,829,302	2,918,886	3,007,121	3,095,513	3,185,255	645,203
Nigeria	4,883,215	4,997,793	5,112,580	5,227,686	5,343,159	21,768,651	22,046,554	22,310,561	22,557,637	22,785,204	4,868,478
Rwanda	244,651	249,480	255,032	260,710	266,301	1,043,863	1,058,282	1,072,125	1,084,522	1,094,857	218,587
Sao Tome & Prin.	5,282	5,413	5,546	5,679	5,811	25,648	25,903	26,116	26,279	26,392	4,803
Senegal	378,555	387,460	396,447	405,479	414,527	1,719,849	1,743,812	1,764,727	1,782,403	1,796,751	389,846
Sierra Leone	263,211	268,508	272,895	277,062	281,519	991,182	1,006,115	1,016,183	1,024,633	1,033,860	211,867
Somalia	551,186	572,800	594,565	616,478	638,554	2,252,790	2,330,704	2,405,190	2,476,910	2,546,510	320,258
Sudan, North	1,055,066	1,074,773	1,094,024	1,112,981	1,131,768	4,900,303	4,907,028	4,908,322	4,905,825	4,900,940	1,087,445
Sudan, South											-
Swaziland	26,248	26,253	26,228	26,187	26,142	122,592	121,018	119,363	117,752	116,276	22,020
Tanzania	1,386,728	1,411,477	1,436,556	1,462,233	1,488,682	6,037,371	6,073,920	6,112,702	6,151,654	6,189,055	1,247,094
Togo	190,692	195,014	199,422	203,876	208,346	843,761	855,383	866,903	877,863	887,919	214,710
Uganda	1,314,069	1,361,488	1,411,157	1,462,740	1,515,990	5,526,041	5,704,567	5,882,802	6,061,669	6,241,878	1,190,746
Zambia	450,588	456,098	461,958	468,147	474,640	1,927,441	1,938,442	1,950,852	1,964,832	1,980,404	429,581
Zimbabwe	337,492	337,907	338,175	338,346	338,461	1,563,792	1,556,028	1,548,794	1,541,760	1,534,650	307,162
TOTAL	25,580,193	26,205,756	26,840,334	27,483,724	28,135,957	109,682,681	111,500,163	113,247,203	114,926,024	116,538,457	23,885,034

Source: UNPOP. World Population Prospects: 2002 Revision Population Database. http://esa.un.org/unpp ed: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, 2003. Courtesy of John Miller, WHO

Annex 2 Table III: Planned measles campaigns by country (2005-2008)

COUNTRY	Planned Campaign Date	Campaign Type	Planned ITN Integration	Action Plan Target Group*
Angola	Aug-06	Follow up	Y	2,944,203
Benin	*Dec-05*	*Follow up*	Y	-
Burkina Faso	2007	Follow up		2,843,100
Burundi	Jun-06	Follow up		1,147,770
Cameroon	Jan-06	Follow up	Y?	2,438,121
CAR	Nov-05/Jan-06	Catch up		629,032
	2008	*Follow up*		
Chad	*Sep-05*	*Catch up*		
	Jan-06	Catch up		1,800,998
Comoros	-	-		-
Congo	2007	Follow up		768,351
Cote d'Ivoire	*Aug-05*	*Catch up*		
	2007	Follow up		2,579,784
DRC	*Oct-05*	*Catch up*		-
Eq. Guinea	*Sep-05*	*Catch up*	Y	-
Eritrea	2007	Follow up		786,355
Ethiopia	*Jun-05*	*Follow up*		-
Gabon	*2005*	*Catch up*		-
Gambia	2007	Follow up		230,661
Ghana	Sep-06/Dec-06	Follow up		3,082,803
Guinea	2007	Follow up		1,550,251
Guinea-Bissau	-	-		-
Kenya	Aug-06	Follow up	Y?	3,632,896
Liberia	2006	Follow up		710,808
Madagascar	-	-		-
Malawi	*Aug-05*	*Follow up*		-
Mali	-	-		-
Mauritania	2007	Follow up		549,952
Mozambique	*Sep-05*	*Catch up*	Y	-
Namibia	2007	Follow up		119,099
Niger	*Oct-05*	*Catch up*	*Y?*	-
Nigeria	Jun-06	-	Y	21,768,651
Rwanda	2006	Follow up	Y	1,043,863
Sao Tome & Prin.	Jan-06	Follow up		25,648
Senegal	2006	Follow up		1,719,849
Sierra Leone	May-06	Follow up	Y	991,182
Somalia	May-06/2007	Catch up		2,252,790
Sudan, North	*Sep-05*	*Catch up*		-
Sudan, South	*Nov-05/Jan-06*	*Catch up*		-
Swaziland	2006	Follow up		122,592
Tanzania	-	-		-
Togo	-	-		-
Uganda	2006	Follow up		5,526,041
Zambia	2006	Follow up		1,927,441
Zimbabwe	May-06	Follow up	Y?	1,563,792
TOTAL				62,756,033

* National population of under five year olds (not excluding <9 months)

? Indicates uncertainties during planning process which may delay integrated campaign

Source: courtesy of WHO

Annex 2 Table IV: Existing estimates of ITNs and funds needed to reach RBM and/or malaria MDGs

Study	Objective	Total Vulnerable Target Population (PW & U5s)	How calculated	Major assumptions	Number of ITNs needed	How calculated	Major assumptions	Cost (USD)	How calculated	Major assumptions
Miller et al (in process) Monitoring the number of mosquito nets in African households south of the Sahara	Estimate no. ITNs currently available and needed to reach Abuja target of 60% net usage by PW & U5s by 2005	122,774,000 (popn)	Total U5s + total pregnant women	U5 data directly from World Population Prospects Population Database; PW derived from number of pregnancies (live births+ maternal deaths during pregnancy); population data from same year as net survey	92.3 million	HH with PW&U5 in risk areas x 1.09 (60% targeted coverage/ 55% usage by target groups) x popn growth rate (to 2005)	All nets targeted to HH with PW & U5s in areas at risk; 55% nets owned in areas at risk used by PW & U5s	258.4 million	92.3m ITNs x USD 2.80	USD 2.80 cost per net delivered: UNICEF bulk purchase price of USD 1.40 per net + USD 1.40 delivery costs incl. wages, allowances, admin, transport (Curtis et al, 2003)
		111,597,000 HH	?? HH with U5s + HH with PW (independent??)	Proportion of HH with U5 or woman 15-49 years from MICS; Ratio of PW: women used to calculate proportion and number of HH with PW	136.1 million	HH in risk areas x 1.09 (60% targeted coverage/ 55% usage) x popn growth rate (to 2005)	ITNs equally distributed over areas at risk and not at risk	381.1 million	136.1m ITNs x USD 2.80	
					169.3million	HH with PW&U5 in risk areas x 2 ITNs x popn growth rate (to 2005)	Fixed 2 ITNs for all HH in risk areas with PW & U5s	474.0 million	169.3m ITNs x USD 2.80	
Kiszewski et al (in process) An estimate of the total costs of the interventions required at country level from 2005-2015 to reach international malaria control goals.	Estimate costs needed to support minimal set of interventions (incl. ITNs) required to acheve 2010 Abuja targets and 2015 malaria MDG	205,000,000 (worldwide) ?136,790,000 Africa	30m PW + 175m U5s	Highly vulnerable popn defined as PW & U5s living in areas where more likely than not to be exposed to *P.falciparum* infection within given year; Figures from UNPOP statistics and World Fertility Report (age-specific fertility rates)				1.66 billion (ranges by year from 95.7m-223.3m)		Gradual increase in ITN coverage from 2005-2015 to achieve 95% by 2015; One net between two people; Lifespan of net 3 years (costs include replacement); USD 7.00 per net (USD 6.00 median cost of LLIN from RBM "Sources & Prices", USD 1.00 distribution costs)
UN Millennium Project (2005) Coming to grips with malaria in the new millennium; Estimated costs of scaled-up malaria control efforts in Ethiopia, 2005-2015.	Reduce malaria burden by half by 2010 and by a further 50% by 2015 - increase bednet coverage from 45% in 2005 to 100% in 2007 and maintain until 2015 for all living in malarious area	14.9 million (2005) 79.6 million (cumulative total 2005-2015)	Total popn (73m) x Popn at risk of malaria (68%) x at-risk population eligible for ITN (30%)	Unclear wher 30% 'eligible' figure came from - proportion needed to reach 45% coverage? U5s & PW?	4 million (2005)	No. eligible HH x 3 ITNs per HH - existing ITNs. :	No. HH taken as eligible popn/ 5 people; for successive years, recipients those without ITNs previous year + new popn at risk due to popn growth (3%)	29.36 million (2005) 273.9 million (total to 2015)	2005: New nets (4m ITNs x USD 7.00) + Retreatment (3m x USD 0.40). Total: No. nets needed every year to reach and maintain 100% coverage x USD 7.00.	USD 7.00 per new net (USD 5.00 purchase price + USD 2.00 handling, storage and distribution); Initial cost of retreating 3m existing nets in country (USD 0.4/net); Replacement nets every 4 years

Annex 2 Table V: Estimated numbers covered by catch-up (ANC, EPI) and keep-up (combined campaigns) strategies

	2006			2007			2008		2009		2010	
COUNTRY	Campaigns	ANC	EPI	Campaigns	ANC	EPI	ANC	EPI	ANC	EPI	ANC	EPI
Angola	2,433,856	471,285	272,525		485,711	279,231	500,217	285,924	514,821	292,566	529,546	299,121
Benin		256,610	163,203		263,301	166,754	270,093	170,165	276,990	173,391	283,991	176,399
Burkina Faso		478,405	233,389	2,285,419	492,903	239,326	507,851	245,148	523,243	250,811	539,076	256,298
Burundi	901,511	255,773	183,955		264,695	193,761	273,709	203,541	282,648	212,985	291,395	221,770
Cameroon	2,054,402	429,129	235,604		435,474	235,770	441,608	235,828	447,576	235,825	453,416	235,795
CAR	526,957	98,779	53,487		100,230	53,852	101,756	54,225	103,318	54,598	104,884	54,952
Chad	1,477,963	142,095	95,942		146,307	98,991	150,626	102,006	155,049	104,966	159,573	107,852
Comoros		24,143	14,643		24,803	14,748	25,469	14,834	26,137	14,905	26,805	14,962
Congo		119,134	72,507	598,744	122,629	74,748	126,304	77,024	130,090	79,325	133,935	81,637
Cote d'Ivoire		491,117	272,379	1,989,261	498,800	273,729	506,522	274,983	514,224	276,156	521,865	277,241
DRC		1,423,517	944,431		1,465,302	973,721	1,507,741	1,002,791	1,551,004	1,031,308	1,595,207	1,058,898
Eq. Guinea		14,933	8,597		15,315	8,809	15,701	9,015	16,092	9,213	16,486	9,399
Eritrea		120,333	103,790	622,001	124,623	106,223	128,883	108,441	133,012	110,431	136,943	112,188
Ethiopia		531,440	568,438		544,233	576,690	557,271	584,808	570,585	592,699	584,194	600,285
Gabon		36,882	16,202		37,576	16,200	38,291	16,209	39,014	16,233	39,736	16,271
Gambia		45,992	31,935	182,274	47,084	32,065	48,169	32,168	49,243	32,257	50,303	32,341
Ghana	2,598,266	591,652	403,135		603,793	405,148	615,939	407,003	628,067	408,731	640,160	410,346
Guinea		252,588	137,524	1,198,301	259,087	139,141	266,175	140,767	273,475	142,419	280,702	144,111
Guinea-Bissau		53,157	37,910		54,707	39,008	56,291	40,087	57,916	41,145	59,585	42,185
Kenya	2,653,360	689,426	710,164		698,326	727,365	707,165	742,332	715,852	754,742	724,321	764,360
Liberia	600,071	123,279	63,120		126,779	64,482	130,170	65,867	133,570	67,301	137,069	68,798
Madagascar		575,022	332,938		591,047	337,232	607,364	341,441	623,968	345,552	640,855	349,556
Malawi		508,006	312,433		517,523	316,063	527,165	320,025	536,997	324,326	547,072	328,969
Mali		366,695	215,197		378,485	220,307	390,743	225,460	403,432	230,637	416,524	235,836
Mauritania		79,151	54,012	433,797	81,398	54,918	83,661	55,734	85,941	56,464	88,239	57,112
Mozambique		647,781	404,807		657,698	407,402	667,540	409,847	677,379	412,204	687,264	414,549
Namibia		21,022	31,999	66,033	21,211	31,960	21,385	32,023	21,552	32,184	21,712	32,439
Niger		279,214	174,678		289,412	178,973	299,930	183,426	310,777	188,065	321,961	192,912
Nigeria	18,149,214	2,978,761	1,299,378		3,048,654	1,311,811	3,118,674	1,323,340	3,188,888	1,333,888	3,259,327	1,343,310
Rwanda	788,902	226,302	209,323		230,769	213,439	235,905	217,069	241,157	220,221	246,328	222,868
Sao Tome & Prin.	22,016	4,912	2,848		5,034	2,867	5,158	2,879	5,281	2,886	5,404	2,886
Senegal	1,424,740	311,551	180,607		318,880	182,388	326,276	184,001	333,709	185,425	341,156	186,639
Sierra Leone	828,546	178,983	100,021		182,585	102,534	185,569	104,877	188,402	107,040	191,433	109,040
Somalia	2,006,159	323,546	92,487		336,234	94,308	349,010	96,065	361,873	97,744	374,831	99,335
Sudan, North		701,619	430,287		714,724	431,203	727,526	431,951	740,132	432,601	752,626	433,193
Sudan, South		0	0		0	0	0	0	0	0	0	0
Swaziland	102,236	24,411	15,959		24,415	15,844	24,392	15,761	24,354	15,705	24,312	15,673
Tanzania		1,307,685	757,859		1,331,023	759,676	1,354,672	761,257	1,378,886	762,713	1,403,827	764,092
Togo		156,367	92,389		159,911	93,419	163,526	94,359	167,178	95,219	170,844	96,006
Uganda	4,471,353	1,207,629	599,063		1,251,207	622,977	1,296,853	647,307	1,344,258	671,825	1,393,195	696,269
Zambia	1,602,502	420,849	274,249		425,996	277,069	431,469	279,906	437,249	282,746	443,314	285,553
Zimbabwe	1,293,411	313,868	213,871		314,254	214,285	314,503	214,733	314,662	215,124	314,769	215,365
TOTAL	43,935,463	17,283,046	10,417,266	7,375,830	17,692,139	10,588,437	18,107,270	10,754,626	18,528,002	10,914,579	18,954,185	11,066,812

Source: UNPOP. World Population Prospects: 2002 Revision Population Database. http://esa.un.org/unpp ed: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, 2003. Courtesy of John Miller, WHO

Campaigns data includes children aged 9-59 months, assuming 100% coverage

ANC data includes projections on the population of pregnant women at the latest ANC coverage levels

EPI data includes projections on the population of children aged 0-9 months at the latest EPI coverage

Annex 2 Table VI: Calculations of coverage achieved by each delivery strategy

	Total <5s	No. <5s covered (ANC Only)	No. <5s covered (ANC & EPI)	Total pregnant women	No. pregnant women covered	Total <5s and pregnant women	Total <5s and pregnant women covered (ANC & EPI)	Propn. of <5s and pregnant women covered (ANC & EPI)	Total <5s and pregnant women covered (ANC)	Propn. <5s and pregnant women covered (ANC)
2006	109,682,681	53,328,480	66,104,748	25,580,193	17,283,046	135,262,874	83,387,794	61.6	70,611,526	52.2
2007	111,500,163	69,373,383	94,925,919	26,205,756	17,692,139	137,705,919	112,618,058	81.8	87,065,522	63.2
2008	113,247,203	57,231,269	95,560,073	26,840,334	18,107,270	140,087,537	113,667,343	81.1	75,338,539	53.8
2009	114,926,024	23,763,802	62,092,606	27,483,724	18,528,002	142,409,748	80,620,608	56.6	42,291,804	29.7
2010	116,538,457	18,528,002	56,856,806	28,135,957	18,954,185	144,674,414	75,810,991	52.4	37,482,187	25.9

	Catch-up & Keep-up Coverage of <5s and PW		
	100% Coverage of Target Population	Campaigns & ANC Only	Campaigns & ANC & EPI
2006	All 2006 <5s + all 2006 PW	<5s from 2006 measles campaigns + PW through 2006 ANC	<5s from 2006 measles campaigns + routine measles 2006 + PW through 2006 ANC
2007	2007 PW	1-4s from 2006 measles campaign + <5s from 2007 measles campaigns + <1s from 2006 ANC + PW from 2007 ANC	1-4s from 2006 measles campaign + <5s from 2007 measles campaigns + <1s from 2006 ANC + routine measles 2007 + routine measles 2006 + PW from 2007 ANC
2008	2008 PW	2-4s from 2006 measles campaigns + 1-4s from 2007 measles campaigns + <1s from 2007 ANC + PW from 2008 ANC	2-4s from 2006 measles campaigns + 1-4s from 2007 measles campaigns + <1s from 2007 ANC + routine measles 2008 + routine measles 2007 + routine measles 2006 + PW from 2008 ANC
2009	3-5s from 2006 + 2009 PW	2-4s from 2007 measles campaigns + <1s from 2008 ANC + PW from 2009 ANC	measles 2009 + routine measles 2008 + routine measles 2007 + PW from 2009 ANC
2010	3-4s from 2007 + 2010 PW	<1s from 2009 ANC + PW from 2010 ANC	<1s from 2009 ANC +routine measles 2010 + routine measles 2009 + routine measles 2008+ PW from 2010 ANC

* PW = pregnant women

Annex 2 Table VII: National antenatal clinic and vaccination coverage, by country

		Survey Data			WHO/UNICEF (2004)
Country	Data Source	National ANC Coverage	National DPT1 Coverage	National DPT3 Coverage	National DPT3 Coverage
Angola	MICS 2000	62.9	55.8	33.9	59.0
Benin	DHS 2001	88.3	87.2	72.5	83.0
Burkina Faso	DHS 2003	72.4	76.1	57.0	88.0
Burundi*	MICS 2000	86.0	86.0	70.1	74.0
Cameroon	MICS 2000, DHS 1998	79.0	68.7	44.6	73.0
CAR	DHS 1994/95	67.0	75.6	47.5	40.0
Chad	MICS 2000, DHS 1996/97	32.0	45.1	20.7	50.0
Comoros	MICS 2000, DHS 1996/97	85.0	72.8	69.6	76.0
Congo**		68.4	66.7	46.0	67.0
Cote d'Ivoire	MICS 2000	83.8	78.7	61.9	50.0
DRC*	MICS 2001	53.5	53.5	30.7	64.0
Eq. Guinea**		68.4	66.7	46.0	33.0
Eritrea	DHS 2002	70.4	90.6	82.8	83.0
Ethiopia	DHS 2000	26.8	44.4	20.7	80.0
Gabon	DHS 2000	93.9	69.4	37.6	38.0
Gambia*	MICS 2000	91.7	91.7	72.2	92.0
Ghana	DHS 2003	90.1	90.8	79.5	80.0
Guinea	DHS 1999	70.1	71.9	46.2	69.0
Guinea Bissau*	MICS 2000	68.5	68.5	37.7	80.0
Kenya	DHS 2003	87.8	89.2	72.2	73.0
Liberia**		68.4	66.7	46.0	31.0
Madagascar	MICS 2000	80.6	74.4	63.0	61.0
Malawi	DHS 2000	94.4	95.9	84.2	89.0
Mali	DHS 2001	52.1	61.0	39.6	76.0
Mauritania	DHS 2000/01	62.9	70.0	39.9	70.0
Mozambique	DHS 2003	84.0	87.6	71.6	72.0
Namibia	DHS 2000	84.9	92.0	79.3	81.0
Niger	MICS 2000, DHS 1998	39.4	43.2	28.1	62.0
Nigeria	DHS 2003	61.0	42.6	21.4	25.0
Rwanda	DHS 2000, MICS 2000	92.5	90.3	80.9	89.0
Sao Tome & Principe*	MICS 2000	93.0	93.0	79.7	99.0
Senegal	MICS 2000, DHS 1999	82.3	73.3	50.0	87.0
Sierra Leone*	MICS 2000	68.0	68.0	45.5	61.0
Somalia*	MICS 1999	58.7	58.7	35.6	30.0
Sudan (North)*	MICS 2000	66.5	66.5	44.1	55.0
Sudan (South)	MICS 2000	21.1			22.2
Swaziland*	MICS 2000	93.0	93.0	78.6	83.0
Tanzania/ Zanzibar	DHS 2004	94.3	93.3	85.9	95.0
Tanzania (Zanzibar)	DHS 2004	98.8	95.5	88.6	98.8
Togo	MICS 2000	82.0	81.4	56.6	71.0
Uganda	DHS 2000/01	91.9	77.0	46.1	87.0
Zambia	DHS 2001/02	93.4	94.1	80.0	80.0
Zimbabwe	DHS 1999	93.0	87.5	80.9	85.0
MEDIAN		80.6	75.0	53.3	73.0

* Missing ANC coverage data calculated using median ratio of ANC/DPT1 coverage

** Missing survey data calculated using mean ANC/DPT1/DPT3 data from Cote d'Ivoire, DRC, Sierra Leone (as proxy complex

Annex 2 Table VIII: Funds allocated and disbursed for malaria control

Country	Allocated Funds (USD)	Maximum 5 Year Funds	Amount Disbursed by July 2004* (USD)	Donor	Funded Years
Angola	25,259,000	38,383,000	11,260,370	GFATM (R3)	
Benin	2,389,185	2,973,150	2,317,139	GFATM (R1)	
	1,383,931	2,145,813	816,495	GFATM (R3)	
Burkina Faso	7,144,703	7,144,703	2,925,513	GFATM (R2)	
Burundi	13,792,126	17,766,125	12,930,062	GFATM (R2)	
Cameroon	16,938,794	32,770,143	5,418,552	GFATM (R3)	
CAR	10,952,816	17,857,057	1,872,782	GFATM (R4)	
Chad	3,028,688	8,030,340	-	GFATM (R3)	
Comoros	1,534,631	2,485,878	599,483	GFATM (R2)	
Congo	-	-	-		
Cote d'Ivoire	-	-	-		
DRC	24,966,696	53,936,609	5,755,998	GFATM (R3)	
	6,153,100	-	-	DFID	2003-2005
Eq. Guinea	-	-	-		
Eritrea	2,617,633	7,911,425	1,080,215	GFATM (R2)	
Ethiopia	37,915,012	76,875,212	32,600,733	GFATM (R2)	
	2,244,250	-	-	DFID	2005-2006
Gabon	7,419,625	9,892,185	1,224,253	GFATM (R4)	
Gambia	5,665,500	13,861,866	3,104,829	GFATM (R3)	
Ghana	4,596,111	9,356,933	4,088,709	GFATM (R2)	
	18,561,367	38,887,781	7,355,508	GFATM (R4)	
Guinea	6,893,509	8,798,945	1,398,095	GFATM (R2)	
Guinea-Bissau	1,885,791	4,177,512	192,906	GFATM (R4)	
Kenya	10,526,880	33,586,810	4,640,447	GFATM (R2)	
	81,972,711	186,319,508	-	GFATM (R4)	
	49,912,120	-	-	DFID	2002-2006
	24,417,440	-	-	DFID	2007
Liberia	12,140,921	12,140,921	6,184,615	GFATM (R3)	
Madagascar	1,120,476	2,000,064	1,750,299	GFATM (R1)	
	5,232,448	10,400,722	2,764,778	GFATM (R3)	
	19,304,060	41,527,527	10,741,254	GFATM (R4)	
Malawi	20,872,000	39,688,000	-	GFATM (R2)	
	-	-	-	DFID	2002-2005
Mali	2,023,424	2,592,991	1,412,336	GFATM (R1)	
Mauritania	824,125	2,899,074	680,999	GFATM (R2)	
Mozambique	12,273,573	28,205,783	6,653,718	GFATM (R2)	
	15,260,900	-	-	DFID	2005
Namibia	3,719,354	6,304,577	1,720,424	GFATM (R2)	
Niger	4,815,109	5,886,835	2,882,940	GFATM (R3)	
Nigeria	17,828,808	44,314,691	8,706,992	GFATM (R2)	
	20,467,000	86,122,000	4,268,800	GFATM (R4)	
	3,815,225	-	2,125,000	DFID	2004
	143,632,000	-	-	DFID	2005-2010
Rwanda	13,045,301	17,676,240	7,428,843	GFATM (R3)	
	1,436,914	-	-	DFID	2003-2005
Sao Tome & Prin.	1,941,359	3,484,859	906,331	GFATM (R4)	
Senegal	4,285,714	7,142,857	1,526,770	GFATM (R1)	
	23,745,283	33,871,668	-	GFATM (R4)	
Sierra Leone	12,096,834	18,805,137	2,043,498	GFATM (R4)	
Somalia	8,890,497	12,866,413	6,123,033	GFATM (R2)	
Sudan, North	14,237,853	33,240,453	8,263,670	GFATM (R2)	
	-	-	-	DFID	2005-2007
Sudan, South	12,855,490	27,827,045	4,903,414	GFATM (R2)	
Swaziland	978,000	1,864,500	614,500	GFATM (R2)	
Tanzania	11,959,076	19,872,716	8,790,612	GFATM (R1)	
	54,201,787	90,468,963	-	GFATM (R4)	
	16,158,600	-	-	DFID	1998-2007
Tanzania (Zanzibar)	781,220	1,153,080	781,220	GFATM (R1)	
	5,089,361	9,586,972	2,792,077	GFATM (R4)	
Togo	3,479,337	5,885,906	2,146,271	GFATM (R3)	
	6,374,288	11,003,235	-	GFATM (R4)	
Uganda	23,211,300	35,783,000	9,749,358	GFATM (R2)	
	66,432,148	158,047,079	-	GFATM (R4)	
	1,436,320	-	800,000	DFID	2003-2004
	1,885,170	-	-	DFID	2004-2007
Zambia	17,892,000	39,274,000	17,891,800	GFATM (R1)	
	20,279,950	43,495,950	-	GFATM (R4)	
	5,386,200	-	-	DFID	2004-2005
Zimbabwe	6,716,250	8,877,500	5,276,938	GFATM (R1)	
	2,764,916	-	-	DFID	2003-2006
TOTAL	989,062,210	1,435,471,753	229,512,579		

* NOTE: total funds disbursed do not include those already disbursed by DFID or some GFTAM grants (data unavailable)

Source: GFATM data courtesy of WHO, DFID data courtesy of Africa Policy Division DFID

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Annex 6: Social Appraisal

1. Social Context

1.1. Background

1.1.1. Despite impressive growth in the Mozambique economy since the end of the civil war in 1992, the country remains one of the poorest in the world. 71% of the rural population and 62% of the urban population are estimated to live below the poverty line, with relatively high depth and severity of poverty. In general, poor households are larger, and have higher dependency ratios, than non-poor households. Data from the 1996 Living Conditions Monitoring Survey (LCMS) suggests that, contrary to what might be expected, female headed households (FHHS) do not, on aggregate, display the kind of poverty which might be expected, with absolute levels of poverty in FHHs being no different than male headed households. However, this aggregate does mask a concentration of poorer households amongst female headed households.

1.1.2. Almost 3 million people, or 20% of the country's population, live in Zambézia Province. The Province mirrors the national poverty profile, with 68% of the population living below the poverty line and almost 35% below the ultra poverty line. Mean consumption in the 1996 Living Conditions Monitoring Survey was estimated at 155,000 MTM per person per month, but this includes a valorisation of food consumption, most of which is subsistence production.

1.1.3. Mozambique has very high levels of illiteracy and limited access to primary education. It is estimated that approximately 40% of men and 76% of women are illiterate and this presents challenges for health education and behaviour change programmes.

Health services

1.1.4. A contributory factor in Mozambique's poverty is very limited access to formal health care. The LCMS found that only 40% of households had a health post within 5 km, and just over 12% of households were more than 40 km from a health post. These figures did not vary according to socio-economic status, with the ultra poor, poor and non-poor having the same degree of physical access to health services. Mean distances to a health post varied little between poverty categories and averaged 18.6 km. Although 150 new health centres were constructed or rehabilitated in 1999 under the Health Recovery Support Programme, this is well below the requirements if the Government is to reach its target of 70% of the population within 'reasonable' reach of health centres by 2001.

1.1.5. Compared with the rest of the country, Zambézia is particularly poorly served by formal health services, with the lowest number of health beds per inhabitant, the least expenditure per capita on drugs, the lowest number of health professionals per capita, and the lowest allocation of health service funds

per capita. Despite recent changes in budget allocations from the centre which have favoured Zambézia and other provinces over Maputo and tertiary hospitals, these per capita inequities exist (see Economic Annex).

1.1.6. Although access to allopathic services is limited, almost 97% of households have a traditional medical practitioner within 5km. The practice of traditional medicine was unlawful until relatively recently, but there are now quite close links between the formal and traditional sectors. There is a Department of Traditional Medicine within INS and there are supposed to be multidisciplinary working groups at provincial level to exchange research. These links resulted from attempts to increase the coverage of both traditional and allopathic services, and from the fact the TMPs indicated they wanted to learn more about allopathic medicine and improve their healing skills.

1.1.7. Unusually for sub-Saharan Africa, there is little private sector provision of health services outside major urban centres.

1.1.8. There is little information on what affects household level investments in preventive health, particularly of the scale proposed in this project in terms of Insecticide Treated Mosquito Nets (ITNs). A study in Manhica and Sofala Provinces of care seeking behaviour for febrile illnesses suggests that in urban areas households do spend significant amounts of money (up to 50,000 MTM per month) on products to combat mosquitoes (particularly coils and sprays); in rural areas, such expenditure is low, although people do take action to combat mosquitoes. HIV/AIDS may influence decision-making in terms of health care spending by individuals and families. This may further reduce ability to pay for ITNs and/or antimalarial drugs. Patterns of family level health spending and decision-making processes will be collected as part of project monitoring activities, primarily through KAP studies. Additionally, patients who are (or think they are) HIV+ may internalise or articulate some fatalism regarding treatment for illnesses including malaria. It will be important that messages emphasise that malaria is treatable even for HIV+ patients. The KAP study and PSI research that informed this initiative were concerned only with finding out the levels of such expenditure and did not investigate what motivates decisions to invest in future health gains. This will be an important area for consideration in the project.

1.2. Impact of malaria

1.2.1. Malaria creates a significant burden for both households and the health sector. It is responsible for 60% of contacts with the health service in rural areas, 70% of paediatric admissions at provincial hospitals and 32% of paediatric mortality within the health service.

1.2.2. The major burden of illness and death falls on pregnant women and children under 5 years old. Recent research has also suggested that women who are HIV positive have higher prevalence and higher densities of malaria infection than HIV negative women (see Technical Annex for further discussion of these issues).

1.3. Knowledge of malaria and its prevention

1.3.1. As part of the activities already started in Zambézia, a KAP study was undertaken by the Centro de Investigação em Saúde de Manhiça (CISM) in villages randomly sampled in Quelimane, Mocuba urban and Mocuba rural Districts. This section draws on the preliminary results of that study, as well as on the results of focus group discussions and interviews conducted by PSI, and on a study of care seeking behaviour for febrile illnesses in Manhica and Sofala provinces.

1.3.2. One of the most important findings of these studies is the significant differences in knowledge of malaria and its causes and symptoms between urban and rural populations. Knowledge of the term malaria is high in urban areas (95%) but less so in rural areas (76%). Fever (or hot body) was identified as the main symptom of malaria, along with other symptoms of uncomplicated malaria including vomiting, shivers, diarrhoea, but the symptoms of severe malaria were not mentioned. Most people said they would take a child with fever, anaemia, unconsciousness or convulsions to the nearest health facility, although the proportion decreases away from urban centres. Use of traditional healers is higher in rural areas (18%) than in urban areas (2%).

1.3.3. Only 32% of rural households in the KAP study identified mosquitoes as a means of transmission of malaria, compared to more than 90% in urban areas. Malaria is considered a major disease which affects everyone but mostly children. Pregnant women were not identified as being at particular risk. Key sources of information on malaria are radio in urban areas and health posts in rural areas.

1.3.4. People know a number of ways in which to prevent mosquito bites, including burning leaves, waving cloths, using sprays and mosquito nets, although in rural areas almost 50% of respondents said that they did not do anything to prevent mosquito bites. In the focus group discussions conducted by PSI, nets were considered to be the most effective method of preventing mosquito bites, although only a minority actually owned one, indicating that knowledge of preventive mechanisms does not necessarily translate into purchase and use of nets. The KAP study found that knowledge of nets was high (94% in Quelimane, 58% in Mocuba rural) but that net ownership was low (34% in Quelimane, 2% in Mocuba rural). The major obstacles to owning a net cited by rural households were not having the money to purchase a net and not knowing where to buy one. The study in Manhica and Sofala found low use of nets, and higher knowledge of them. It also found a reluctance to spend money on purchased products to reduce mosquito bites, though it is not clear if this would be affected by a better knowledge of the relationship between mosquito bites and malaria. All research showed that the use of insecticide for treating nets is virtually unknown.

1.3.5. Issues of intra-household use of the net affect the impact they have on vulnerable groups. In turn, sleeping habits can either support or make more difficult attempts to ensure that vulnerable groups (in this case pregnant women

and children under 5) get access to nets. Monitoring of net usage by target groups will be undertaken through the KAP surveys and also by direct observation where possible. The studies in Zambézia suggest that in general, both parents sleep with children under three, pregnant women sleep with their husbands, then after childbirth the mother and child sleep on their own for anything up to six months. Since there is relatively low use of nets in rural areas, the studies did not investigate who is actually using nets in households that own one.

1.3.6. The KAP study has produced an initial report, but the data will be analysed further to give a better picture of how KAP differs between genders and between different socio-economic groups. This information will be used to inform both the behaviour change activities undertaken by PSI and those by the community level facilitators.

Malaria treatment

1.3.7. Health seeking behaviour is influenced by a number of factors including beliefs of disease causation, age and sex of the sick person, support networks available to the individual and the household, availability of treatment options, quality of service and drug availability, ability to complete the treatment and previous experience. Particularly in cases of sickness in children, family dynamics, cultural traditions and household decision making processes influence the choice of health services. Choice is determined by factors such as type of symptoms and the cause to which they are attributed, what treatments the child has received at home, as well as the physical and financial availability of services. Particularly in the case of malaria, whilst the most appropriate source of treatment for 'malaria' may be the local clinic, when caretakers see a child with severe febrile convulsions they may consider that the best source of treatment is a traditional healer because convulsions are caused by the spirits. Symptoms that are considered to be caused by spirits should be treated by TMPs. Although the data from the KAP study suggest that in Mocuba rural, more than half of children with febrile convulsions are taken to formal health facilities, these issues of causation, interpretation of symptoms and their link to appropriate sources of care will need to be addressed in behaviour change activities.

1.3.8. Depending on the cause to which the illness is attributed, different members of the family may take responsibility for treatment. Men usually make decisions when a TMP is required. The KAP study found that in cases interpreted as malaria, mothers decided what to do with a sick child in Mocuba urban and Quelimane, but fathers in the rural areas. The fact that mothers and women are generally caretakers but are unable to make decisions regarding care has implications for the content of and approach to behaviour change activities.

1.3.9. What decisions are taken can have a significant impact on health outcomes; research in Tanzania suggests that about 50% of all deaths in children under 5 preceded by a fever take place with no prior contact with formal

health authorities. Where the fever was accompanied by seizure this figure rises to 80%.

1.3.10. The Zambézia KAP study shows that, in the case of children who are suspected to have malaria, there is a desire to take them to clinics for treatment, with 80% of presumed malaria cases (fever, convulsions, anaemia, etc) taken to formal health services in the first instance. In 18% of cases, children were taken to TMPs (though it is not clear whether this was in the first instance). These results are significantly different to other studies – the nation-wide LCMS, as well as the Manhica and Sofala studies found much higher uses of TMPs in the first instance. The LCMS suggests that preference for traditional medicine is based more on increased access, flexible payment and perceptions that TMPs can treat particular ailments, than on any specific confidence in or comfort with traditional practices. Often the use of formal health care is not mutually exclusive or it is sequential and there are opportunities for working with communities, TMPs and the formal health sector in order to maximise knowledge of malaria and appropriate treatment.

1.3.11. At this stage, the interaction between patients and the two sectors in rural parts of Zambézia is not clear. However, TMPs as first port of call for cases of non-complicated malaria (even if only for a fifth of cases), suggests a significant role for them in the project. The evaluation of the Unicef funded ITN project in Aldeia Julius Nyerere (Gaza Province) identified that the lack of involvement of TMPs (amongst others) had a negative effect on the continuation (informally) of IEC activities outside the boundaries of the project.

1.3.12. If a family member is suffering from HIV/AIDS infection or associated illnesses, household decision-making processes in regard to treatment seeking and health spending on malaria may change. Increased spending on treatment of HIV-associated illnesses may preclude purchase of ITNs and/or FLDs for malaria treatment.

1.3.13. The promotion of the use of mosquito nets as a strategy to combat malaria was introduced by MISAU in their malaria control plan for 1999-2001. However, up until now home treatment has not been encouraged and communities are not mobilised and involved in malaria control activities. The project is therefore the first attempt to put both community based prevention and community based treatment into action.

1.4. Gender issues

1.4.1. Women are consistently disadvantaged in Mozambique. Almost 43% receive no education compared with 20% of boys, and women are underrepresented in all parts of society. Although women are 30% more likely to report illness, they have the same utilisation patterns of formal health services as men, which suggests the much greater barriers which women face in seeking health care. There is no difference in biological susceptibility to malaria infection between women and men, but women are more at risk during pregnancy. There does not appear to be much research in Mozambique on health seeking

behaviour amongst pregnant women in relation to malaria, and the KAP study suggested that there is very little if any awareness of the greater vulnerability of pregnant women to malaria.

1.4.2. Women's social status inhibits their participation in household and community decision making relating to health, particularly in rural areas (see para 1.18 above). In most cases in rural areas it is men who decide on the purchase of medicines, and for larger expenditure items such as mosquito nets.

1.4.3. RBM (globally) is to develop a specific gender strategy which can inform the project of possible approaches to address gender issues, though these will need to be tailored to the particular situations found in Zambézia.

1.4.4. The results of the KAP study and PSI's studies have identified particular avenues through which to begin dialogue on gender issues within the household, particularly how women can discuss with their husbands the purchase of a mosquito net. One factor identified is that men whose wives are pregnant are likely to take decisions which they feel will benefit the child. Participatory Malaria Prevention and Treatment (PMPT) materials (see section 2.4 below) may need to be developed further to address gender issues in relation to treatment.

1.4.5. Other sections of this annex discuss more specific gender issues.

2. Project interventions

2.1. The project has two strands which intend to bring about behaviour change in both the prevention and treatment of malaria, and both are complementary. The first is community based prevention and treatment, the second the promotion and use of insecticide treated nets.

2.1. Community based prevention and treatment

2.1.1. In Zambézia, there has been little attempt so far to undertake activities on a large scale intended to increase individuals' knowledge of malaria. Additionally, the prescription and sale of drugs is, in theory, still only undertaken within the formal health sector. Without additional support, which mainly comes through NGOs, health staff have limited resources to undertake outreach activities. The main government resources for outreach concentrate on immunisation campaigns. In Zambézia, World Vision, together with the DPS, are implementing a preventive health care programme in a number of Districts including Mocuba. Through these activities, health workers and health volunteers supported by World Vision undertake preventive health care activities and promotion of behaviour change at community level.

2.1.2. It is unlikely that government resources for outreach will change significantly in the near future, although the expected start of the Integrated Management of Childhood Illnesses (IMCI) programme in 2001 may lead to changes in resource allocations at health post level in favour of community based activities.

2.1.3. Unicef, through its support to the water and sanitation sector, has already established a multi disciplinary training team in the CFPAS (Centre for Professional Training in Water and Sanitation) who specialise in training provincial counterparts in participatory learning for action approaches to behaviour change. This team, and a provincial team in Zambézia, have already developed materials for facilitating community level discussions around issues of malaria. The original materials were developed using the research carried out by PSI on mosquito nets, and on the Malaria KAP study undertaken by CISM et al in 1999. The materials were pre-tested and revised accordingly in Zambézia and are designed to be used in situations of high illiteracy. The objective of the approach and the materials is to help communities to assess and analyse their current situation and behaviour in relation to malaria as a first step towards behaviour change. These materials, and the support of the provincial and national training teams will be available to support behaviour change activities at community level.

2.1.4. The approach to behaviour change and its associated materials and tools has been referred to in this document as Participatory Malaria Prevention and Treatment (PMPT). This is merely an acronym to bring together all the elements of the community development approach and is not a new tool or new approach to community development.

2.1.5. World Vision (WV), who are already undertaking activities to promote behaviour change in Zambézia, will manage the PMPT activities of the programme. WV is supporting the development of (volunteer) health councils, whose members each work with 10 households to introduce health messages and promote behaviour change. The approach has proved a successful one in improving community capacity and which is able to sustain a volunteer system, and has the full support of the DPS (see the Institutional Appraisal for more details). WV trainers and facilitators will be able to draw on the materials already developed, as well as working with communities to revise approaches to PMPT such that they can identify how malaria is perceived by different groups within the community, how it affects them, and the constraints to effective prevention and treatment that they face. PMPT activities will include discussions with, and about the role of, Traditional Medical Practitioners.

2.1.6. District and Provincial level committees of people involved in malaria prevention and treatment (including administrators, local leaders and representatives of other sectors) have already been formed, and it is expected that these groups will support PMPT activities at community level through publicity and members' participation in awareness raising activities such as dramas.

2.1.7. The impact of these activities is expected to be, in the main, at household level (e.g. increasing caretakers' knowledge of signs and symptoms, ensuring that pregnant women get priority for sleeping under a net). However, the value of such knowledge in influencing treatment seeking is heavily affected by the options available. The section above indicates the difficulties faced in reaching formal care, and so the PMPT activities will also work at community level with the

objective of identifying accepted and trusted channels for the distribution of anti-malarial drugs within communities. This information will need to feedback into the activities of the DPS and DDS to establish distribution systems to those channels. In the more remote areas these may involve commercial distribution channels; the DPS is currently considering mechanisms to control prices when using such channels.

2.1.8. The perceptions of affordability of drugs at local level will depend on a number of factors, including availability of cash, the age and sex of the sick person, perceptions of the severity of the illness and the cost of alternatives such as going to the health post. The KAP study found that costs for treatment of the last episode of malaria were similar in all three study areas, but this did not include the cost of transport; medicines cost between 1000-2000 MTM, with total health care costs being between 1,500 and 6,000MTM. When people reported other costs (transport, food and lodging, paying someone to stay in their house) they were between 5000 and 30000MTM (on average). These additional costs did not vary on average between Quelimane, Mocuba Urban and Mocuba Rural, though the proportions on different costs varied. The community level drug distribution systems should be able to reduce significantly the costs incurred in travelling to health posts to access drugs.

2.1.9. Community based drug distribution brings with it a number of ethical issues, particularly those around 'unqualified' people dispensing drugs. There are examples from other parts of Mozambique, particularly Gaza, of APEs (Community Health Workers affiliated to health posts), and NGO affiliated community health workers dispensing drugs of the type envisaged in this project, having received between two and four weeks training. Depending on what avenues are chosen for drug distribution, training programmes need to be designed accordingly to ensure that drug vendors are following protocols. This process will be helped by the design of a diagnostic algorithm and appropriate packaging for different ages of patients (see Technical Annex for more discussion of this issue).

2.1.10. Other outcomes at community level may include community based transport systems to take seriously ill patients to health posts.

2.2. ITNS

2.2.1. The second part of the project is the marketing of Insecticide Treated Nets (ITNs). This is being implemented by PSI, an organisation which has experience of social marketing of condoms in Mozambique, and experience of marketing ITNs in other countries in the region (Tanzania, Malawi, Zimbabwe).

2.2.2. Equity and rural coverage issues around ITNs have been well documented in a number of countries. Affordability of nets will be a key issue if poor people are to benefit from the project. Affordability is linked not only the amount of 'cash' a person has, but also to the value that they place on the net. Convincing people with very immediate subsistence needs to invest heavily in a

future health gain will be difficult. The fact that people will still get malaria even if they use a net will make this a more difficult task.

2.2.3. PSI have decided on a market segmentation strategy, with a higher priced net being sold in urban areas and cross-subsidising the price of a rural net. This will enable the rural nets to be sold at prices akin to those identified in willingness to pay studies carried out by PSI. A price of 60,000 MTM corresponded to the price of a radio, backpack or trousers in Mocuba at the time of the study. It is accepted that some households will not be able to afford a net. The starting point for the project is to reach as many people as possible by a) cross-subsidising and b) allowing retailers to sell nets however they desire, which could include barter, though this is unlikely to include credit.

2.2.4. The project will also need to consider issues of intra-household use of nets if existing inequities are to be addressed. A number of mechanisms to approach this have been developed by PSI in their marketing plan for 2000. The plan is based on the information from their own studies and the KAP, targeting pregnant women, men with children under 5, and women with children under 5. The behaviour change that they are trying to bring about is: sleep under a net every night, treat the net every four months or after a wash, and give priority to pregnant women and children under 5. This will be the main emphasis of generic communication and will be backed up by specific activities of the community agents with small groups and the use of drama. Modules for the small group activities will focus on: what is malaria and how is it treated; why is re-treatment necessary; and, talking to your husband about buying nets (for women). The impact of these activities on both purchase of nets and intra-household use of nets will be measured through PSI's consumer profile studies and the communications activities revised accordingly to promote the desired behaviour change.

3. Intended poverty reduction outcomes

3.1. The project interventions discussed above will benefit people living in Zambézia, the majority of whom are poor. The burden of disease falls disproportionately on poor households, and the relative costs to them, both directly and indirectly, are greater than for other households. By bringing treatment options for simple malaria closer to people, the cost of treatment seeking should be reduced because of lower transport and other non-health facility costs; these savings are likely to outweigh any increase in the direct price for drugs paid at community level when compared to health facility prices. The indirect costs of illness such as loss of labour, should also be reduced through easier access to treatment and therefore shorter and less severe episodes of illness, as well as through the prevention activities. Early diagnosis and treatment of non-complicated malaria is also more cost effective than treating severe malaria.

3.2. However, it is recognised that poorer and more vulnerable households within the community will be more difficult to reach with either of the

interventions, and at the same time they are more vulnerable to the impact of malaria.

3.3. The interventions as they are designed at the moment are a starting point, and it is the intention to ensure that the focus of project activities continues to be on how to expand the benefits of the project to ensure that they reach poorer and more disadvantaged people within the community. This process has started with the ITN component through market segmentation and will continue by using information coming out of PSI's consumer profiles and other monitoring activities. Future strategies for reaching the poorest households with ITNs may require higher cost subsidies; through this project, information and potential strategies for reaching the poorest with ITNs can be considered.

3.4. It will be more difficult to measure the impact of community based treatment on different groups within the population, but the work of CISM in monitoring, and the possibilities for drawing on their other research in Manhiça, together with the PMPT work of the community level facilitators will provide feedback to the project managers on how the benefits community treatment can be expanded to reach the poorest.

3.5. The project will facilitate greater control by people in Zambézia over their own health care. Establishing systems for providing some health services at community level may open up avenues for communities to negotiate with the DPS/DDS for other health services, though this is not an explicit element of the project.

4. Stakeholder participation in project design

4.1. A table of key stakeholders is attached below, indicating their interests and priorities in the programme. The risk analysis discusses in further detail approaches to mitigating potential negative interests of key stakeholders.

4.2. The programme has come out of discussions with NMCP, DPS, WHO, PSI, WV and Unicef. At this stage, much emphasis has been placed on ITNs, since this activity has been contracted out as a whole piece of work to PSI. Whilst it was always the intention to focus on ITNs in the initial stages of the project, there are perceptions, particularly at District level, that this is a 'net' project.

4.3. Since the DPS and DDS will be vital in steering and developing the community based treatment part of the project, it will be important that they have opportunities to develop and agree strategies in this area. It is intended to do this through Provincial and District level planning and teambuilding workshops once the ITN marketing activities have started.

5. Policy influence of the project

5.1. The project provides an opportunity to feed into other approaches to improving health status, particularly the introduction on IMCI into Mozambique (see para 2.3 above). MISAU is currently developing a Sector Wide Approach to

health care, and it is likely that the associated policy formulation will lead to discussion of innovative ways in which to bring health services to communities which are currently underserved. This project provides an opportunity to investigate some options, particularly ways to establish safe and effective community based drug distribution. However, it should be noted that this is a relatively small project, with a specific focus on malaria and as such will not be able to provide answers to all the policy issues that current health reform needs to address.

the mechanism for the rollout or whether partners other than PSI will be involved. Again, this discussion will follow the planned evaluations.

5.4.3. The NMCP will need to undertake advocacy to generate wider support and financing for its (new) malaria control strategy implementation, to design and co-ordinate a prudent national expansion programme and to provide technical support to the provinces for a sustained period of time. In order to move forward effectively with this expanded agenda, it is of immediate importance that the capabilities for this leadership role are built. Resources for institutional strengthening are included in the proposals for the planned project in Gaza. This may need revisiting if funds to support the Gaza project are not forthcoming within a reasonable timescale.

5.4.4. Similarly, provincial and district planning and management capabilities are still relatively weak. Various sector reform initiatives are underway to deal with this issue. However, it may well be necessary to consider this on a province-by-province basis in the planning for the national rollout.

5.4.5. Knowledge of the new disease control strategy and key interventions needs to be effectively communicated to the Provincial, District and Municipal levels, with provision of adequate technical advice and support to enable implementation. A particular issue is the prioritisation of health needs at the local level and the funding of activities for agreed priorities in line with scarce financial and human resources. Advice on facilitating intersectoral action at the Provincial and District levels would assist with this. These issues require a strong central lead and improved advocacy by the NMCP in the forthcoming strategic planning and annual planning and budgeting exercises.