



*Targeted subsidy strategies for national scaling up of insecticide-treated netting programmes – Principles and approaches*



World Health  
Organization





***TARGETED SUBSIDY STRATEGIES  
FOR NATIONAL SCALING UP OF INSECTICIDE-  
TREATED NETTING PROGRAMMES***

***Principles and approaches***



**World Health  
Organization**

Roll Back Malaria (RBM) is a global partnership founded by the governments of malaria-afflicted countries, the World Health Organization, the United Nations Children's Fund, the World Bank and the United Nations Development Programme. Its objective is to halve the burden of malaria by 2010 by saving lives, reducing poverty, and improving school attendance and living conditions for millions of people in poor countries, especially in Africa.

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## *Contents*

<b>Abbreviations and acronyms</b>	iv
<b>Preface</b>	v
<b>Executive summary</b>	vii
<b>1. Introduction: framework for action</b>	1
<b>2. Operational principles</b>	5
2.1 Sharing of experiences	5
2.2 Key elements of targeted subsidies	7
2.3 Key variables and steps of programme design	11
<b>3. Approaches and better practices</b>	19
3.1 Free nets provided via health services	20
3.2 Subsidized nets sold via health services	31
3.3 Subsidized nets sold via the community	39
3.4 ITN vouchers provided via health services	46
3.5 Other approaches	59
<b>4. Cross-cutting issues</b>	61
4.1 Policies and programmes – beyond projects	61
4.2 How long?	62
4.3 Nets in the home – beyond supply	62
4.4 Monitoring and evaluation	64
4.5 Calculating costs	66
<b>5. Conclusion</b>	71
<b>Annexes</b>	73
Annex A	73
Annex B	78
Annex C	82

## *Abbreviations and acronyms*

ANC	antenatal clinic
CC	community council
CSO	civil society organizations
DFID	UK Department for International Development
DHMT	district health management team
DTP	diphtheria–tetanus–pertussis vaccine
EPI	WHO Expanded Programme on Immunization
GFATM	Global Fund to Fight AIDS, tuberculosis and malaria
IEC	information, education, communication
ITN	insecticide-treated net
KMIS	Kenya Malaria Information Service
LLIN	long-lasting insecticidal net
MERG	RBM Working Group on Monitoring and Evaluation Research
MOH	ministry of health
NGO	nongovernmental organization
PSI	Population Services International
RBM	Roll Back Malaria
SES	socioeconomic status
TS	targeted subsidy
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WV	World Vision



## *Preface*

Practical experiences and lessons in promoting the use of insecticide treated nets (ITNs) are urgently needed to inform the efforts of African nations and the donor community in reducing the number of deaths from malaria. These deaths now total more than 1 million every year.

In 2000, African Heads of State agreed that 60% of pregnant women and children should benefit from ITNs by 2005<sup>1</sup>. This goal represents a formidable challenge to governments, donors and communities.

To provide a systematic basis on which to scale up ITN programmes, the Roll Back Malaria (RBM) Partnership reached consensus in 2002 on *Scaling-up insecticide-treated netting programmes in Africa: A strategic framework for coordinated national action*<sup>2</sup>. The framework, which was produced by the Technical Support Network on ITNs, details principles for sustainable and equitable coverage of populations in need. Two key elements are efficient use of public funds to guarantee accessibility of ITNs to those most vulnerable, and a strengthened commercial market providing affordable ITNs to the general public. The linking of these elements – through coordination of public and private sector activities – is the linchpin of the RBM strategic framework.

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<sup>1</sup> The targets set at Abuja, Nigeria, are: (i) 60% of those suffering from malaria receive appropriate treatment within 24 hours; (ii) 60% of those at risk of malaria, particularly pregnant women and children aged under five years, benefit from the most suitable combination of personal and community protective measures such as ITNs; (iii) 60% of all pregnant women have access to chemoprophylaxis or presumptive intermittent treatment. *The Abuja Declaration and the Plan of Action: An extract from the African Summit on Roll Back Malaria, Abuja, 25 April 2000*. Geneva, World Health Organization, 2003 (WHO/CDS/RBM/2003.46).

<sup>2</sup> *Scaling-up insecticide-treated netting programmes in Africa: A strategic framework for coordinated national action*. Geneva, World Health Organization, 2002 (WHO/CDS/RBM/2002.43).

Detailing such principles in a document and operationalizing them, however, are vastly different tasks. The following pages represent a contribution by the RBM Working Group on ITNs to advance understanding of how these recommendations can be applied within national, district and community-level contexts. In May 2003, under the guidance of RBM Executive Secretary Dr Fatoumata Nafu-Traoré, the Working Group convened representatives from 12 African ministries of health and national malaria control programmes, major donors, as well as nongovernmental and private sector organizations, to share successes and lessons about targeted subsidies for ITNs. This document is an outcome of that workshop<sup>3</sup>.

To some extent, the “better practices” or approaches discussed at the Lusaka meeting, and summarized here, highlight issues that remain to be resolved. Efforts to design ITN programmes at scale are young and will continue to evolve. At the same time, it is hoped that current knowledge will prove useful to countries in assessing their own needs and in planning programmes that serve local realities. RBM partners look forward to learning about and disseminating further experiences about targeted subsidy strategies for ITNs.

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<sup>3</sup> The complete presentations and reports from the working groups of the conference are available on CD-ROM from the NetMark Project (e-mail: [behaviorchange.aed.org](mailto:behaviorchange.aed.org)).



## *Executive summary*

The purpose of this document is to help those involved in planning, promoting and implementing ITN programmes make systematic decisions about how to target public funds effectively. It is based on a week of intensive dialogue – reflecting field experiences in 12 African countries – at a workshop on *Mapping models for targeted ITN subsidies*.

These pages provide principles and approaches for countries and donors to consider in designing ITN interventions that will reach populations in need at the required scale, over the long term and with efficient use of resources. The document examines different ways of *targeting resources*. It considers the effects of these decisions not only on *net use* but on *net supply* and a range of *delivery systems*. It suggests that monitoring these effects and adjusting programmes as conditions (and markets) evolve is the key to equitable as well as sustainable coverage.

Most importantly, the experiences shared here demonstrate that highly committed efforts to protect public health can both help and harm each other. Only strategies that are coordinated in the planning stages and that complement each other in the field will ensure that scarce resources in African homes, in African health systems and in African markets are also protected.

**Part 1** of this document – “Introduction, Framework for action” – describes the basis of consensus on which strategies and principles were discussed at the workshop. This consensus was elaborated in the RBM document *Scaling-up insecticide-treated netting programmes in Africa: A strategic framework for coordinated national action*.<sup>4</sup> The framework advises that any purely local or time-limited efforts must be justified in terms of

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<sup>4</sup> Often shortened in this document to *Strategic framework*.



a long-term programme rationale. It suggests that balance is required among three strategies intrinsic to any comprehensive programme: long-term targeted subsidies for the most vulnerable groups; short-term, time-limited subsidies to strengthen supply; and a viable commercial market.

**Part 2** – “Operational principles” – offers practical insights on programme implementation, shared at the May 2003 Lusaka workshop. It details key variables for the design of ITN programmes as these emerged from the country presentations. These variables include maturity of the market; audience segmentation; and issues related to the health system – in particular, the capacity of the system as well as the target audience’s access to it. This section also analyses the various parts of a subsidized programme and proposes generic planning guidelines. The steps begin with an assessment of local factors and progress to an exit strategy that both responds to and furthers positive change in the local ITN market.

**Part 3** – “Approaches and better practices” – summarizes four different approaches to targeted subsidies for ITNs. The approaches, illustrated by examples presented at Lusaka, include:

- nets distributed free of charge during specific, time-limited contact with the health system;
- nets sold at a subsidized price to qualifying beneficiaries at government health clinics as part of regular service delivery;
- nets sold at a subsidized price through community-based groups;
- vouchers delivered through the health system to qualifying beneficiaries, providing a discount on commercially available ITNs.

These approaches and their variations are appropriate to different country contexts and are presented here in order of their pertinence to increasingly mature market conditions. They are meant to be neither definitive nor prescriptive. The advantages and challenges of each approach are discussed in

relation to such issues as coverage and equity; effect on other ITN programmes; effect on the health system; fraud/leakage; behaviour change; and exit strategies.

**Part 4** – “Cross-cutting issues” – highlights some of the abiding concerns raised during the workshop’s many discussions and working groups. This document is mostly about projects – how to target them, how to plan them, how to transition from one to another. In malaria control programmes, however, the main role of a government and its partners is to think beyond projects and piecemeal efforts. Malaria requires a “life-cycle” approach, a market-wide perspective and a long-term strategy. The document also focuses a great deal on supply. However, promotion of ITNs is a behavioural intervention, including not only appropriate use of nets but appropriate *re-treatment* of nets. Understanding of these behaviours – particularly regarding re-treatment – must be strengthened.

Monitoring and evaluation of ITN programmes is complex because it should examine changes in both the subsidized and unsubsidized markets. The RBM Working Group on ITNs has drafted a set of indicators to guide this process. Perhaps the most difficult subject of monitoring is cost. This document does not compare the costs of different approaches because accurate data are limited. Nevertheless, calculating the costs of lives saved – or potentially saved – by an ITN programme is crucial to the case African partners must make to demonstrate that countries cannot afford for even moderate numbers of citizens to fall asleep at night without ITNs.





## *1. Introduction: framework for action*

Seven years ago, the scientific community produced efficacy studies showing that ITNs can save significant numbers of lives from malaria. It is now known that nearly half the number of severe malaria cases could be prevented by the use of ITNs. Today, however, only about 2% of Africa's most vulnerable groups sleep under treated nets.

Neither the efficacy nor the urgency of this seemingly simple health technology has translated into the strategic plans countries need to get ITNs produced, into homes and used correctly. The path from manufacture to user varies greatly between countries, depending on such complex issues as the malaria ecology, international taxes and tariffs, the maturity of commercial markets, the strengths of different delivery systems, the agendas of different partners and, as always, funding.

The RBM Working Group on ITNs has disseminated a *Strategic framework for coordinated national action* to assist countries in designing effective ITN programmes. The framework summarizes the underlying principles and recommended strategies (see on page 2).

*Coordination* is the fundamental principle proposed by the framework. A national ITN task force or steering committee (including government, donor, private, nongovernmental and commercial partners) can ensure that both immediate and long-term goals are addressed, that programmes are synergistic in terms of target groups covered and markets strengthened and that funding from different sources has maximum public health impact.

*Complementarity* of programmes requires a clearly articulated link between *sustained subsidies* targeting those who are most vulnerable, and an *expanded commercial market* serving those who can afford to purchase nets. This link demands a high degree of joint planning among public and private sector partners.

The public sector is responsible for fostering an *enabling environment* that stimulates emergence of a “net culture” at several levels. Removal of tax and tariff barriers is desirable for local ITN markets to become viable. Governments and other partners must carry out demand creation activities and promote the appropriate use of ITNs in the home. Other responsibilities include ensuring chemical safety through streamlined registration of insecticides, and monitoring for insecticide resistance.

*Within public sector strategies*, complementarity means an appropriate mix of short- and long-term subsidies aimed at ensuring nets are both affordable and accessible – and become increasingly so over time. *Short-term actions* may be necessary to strengthen delivery systems or supply nets directly to those without access. Most of these subsidies serve to “prime the market” and can be phased out as the non-subsidized market grows and prices fall. Plans for these activities should include time limits and exit strategies. At the same time, *long-term subsidies* must be designed for those who will never be able to afford nets at any price. The balance of these activities will be different for different countries, and will also be different for nets and for insecticide.

*Targeting of subsidies* to well defined vulnerable groups ensures that scarce funds are spent on those most in need, and will serve national coverage requirements efficiently over time. Who, what and how to target, within the context of specific country ITN programmes, was the primary focus of the Lusaka workshop and is the subject of the remainder of this document.

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### **Principles of the RBM strategic framework**

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**A national ITN Task Force**, with representation from all partners, must play a critical role in coordinating and catalysing the scaling up of ITN coverage.

**Two key elements of scaling up** are price subsidies – targeted to well defined groups – and private sector growth.

**Achieving complementarity between the public and private sectors** is the key to success. Price subsidies must reinforce or complement the private sector rather than compete with it.

**An enabling environment**, achieved with government support, includes removal of tax and tariff barriers and the streamlined registration of insecticides. Demand-creation activities focused on specific appropriate behaviours are essential to promote use of ITNs in the home.

**Scaling up of national programmes involves three basic approaches:** long-term targeted subsidies, short-term subsidies to encourage ITN market growth, and unsubsidized commercial expansion for sustainability. Short-term strategies, or “market priming”, are most valuable where no commercial activity exists. These activities should be time limited and planned with explicit exit strategies.

**Biological targeting** (e.g. pregnant women and children aged under five years) has the advantage of reaching well defined vulnerable groups with existing delivery mechanisms.

**The subsidy can be delivered through an actual good (net or insecticide) or through a voucher.** Voucher systems avoid the cost, risk and inconvenience of handling commodities. However, voucher systems require that nets and insecticide be available in local shops.

**“Leakage” is an important danger** with any system of subsidies. One form of leakage occurs when individuals outside the intended group take up the benefits of the subsidy. This can occur with both subsidized goods and voucher systems.

**“Crowding out” has been neglected as a problem by most ITN programmes.** This occurs when a subsidized distribution system is untargeted or only loosely targeted. If one aim of a project is to strengthen the ITN market, the sale of subsidized nets to the general public can be counterproductive.

**Subsidized supply systems have proved in practice to be expensive.** Many such projects are built around a community- or district-based revolving fund. The majority of these projects fail to cover operational costs and cannot be sustained after the withdrawal of external funding.

**Insecticide for net treatment is still an unfamiliar commodity in Africa.** Its commercial availability is still very limited and its additional benefit is not easily appreciated by net owners. The argument for subsidizing insecticide may be much stronger than that for nets.

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## *2. Operational principles*

### **2.1 Sharing of experiences**

The Lusaka workshop enhanced understanding of ITN programmes beyond the *Strategic framework* in terms of tactics and practical problems. Country contexts always vary; they also vary over time. These and other principles emerged very clearly from the presentations (see page 4). Described below are the key elements of targeted subsidies, as discussed by participants, and the basic steps of programme design.

#### ***Paying for prevention***

ITNs are a public health good by any measure. For African families as well as their governments, the use of ITNs is also an economic good. Days of productive work lost due to malaria, combined with the costs of treatment, have deprived these countries of an estimated 32% of potential GDP over the past 35 years. Clearly, cost should not be a barrier to net ownership for these populations.

As in any public health programme, however, cost is not the only obstacle. In a net programme, *adequate supply* is likely to be the first barrier. *Accessibility* of that supply is likely to be the next – particularly in rural areas where malaria may be endemic. *Desirability* is yet another factor. (Do people really want nets? Which nets? Do they understand that nets protect against malaria, or just mosquito bites?) When nets are available and in demand, *affordability* becomes the issue. Other consumer-driven issues also arise. (Will nets be correctly used?



By those in the family at greatest risk? Will they be re-treated as necessary?)

The complex path of a net from the manufacturer to its user can be subsidized in several ways, as illustrated in the programmes described in Part 3 below. This path can be subsidized at different points, in varying amounts, for various groups and via many kinds of administrative systems. The concept of a targeted subsidy is initially a simple one. *Who will receive it?* This is no doubt the key issue of *targeting*. Following directly from this question are others of equal importance: *What* will be subsidized? *Where and when* will people have access to it? *How* will the subsidy be delivered? These are the practical design issues that every ITN programme must address.

### ***Today's programme, tomorrow's need***

Beyond these immediate questions lie others that are even more difficult. Health programmes aimed at control, rather than eradication, must consider the question “how long?” when proposing other intricate parts of an intervention. Even the nets distributed today will have to be replaced in 2–4 years. One of the primary challenges of an ITN strategy is determining how to save the most vulnerable mothers and children through a programme that also provides an opportunity to protect those at risk tomorrow. Achieving that delicate balance – between equity and sustainability – is the underlying goal of every public health effort.

The *Strategic framework* proposes that a viable commercial market is an important part of any long-term vision of nets “for all”. Segmentation approaches that can take advantage of such a market increase *how many* people can be covered with public funds. Availability of commercial ITNs prevents leakage of subsidized nets to those who can readily afford to pay, preserving more for those who cannot. It also ensures a source of nets for people who are not at highest risk but who should nevertheless be protected. Moreover, as competition increases, the prices of nets fall, the retail system gradually expands and ITNs become more accessible and more affordable (the workshop

example of a voucher programme in Zambia illustrated how rapidly the market can respond to competition). The extent of public expenditures on vulnerable populations can reduce in direct proportion to such growth. *How long* subsidies can be sustained becomes a far less difficult proposition – even if, over time, government and donor investments are reduced.

In practice, integration of private and public interests is always complex.

### ***Do no harm***

As a relatively young intervention, promotion and delivery of ITNs is still finding its place within the overall health service structure. Many innovations involve “piggybacking” or attaching onto existing systems that reach vulnerable groups. Lusaka presentations described ITNs being delivered together with measles vaccinations during mass prevention campaigns, as part of antenatal services during regular clinic visits, and with provision of food aid and other supplies during emergency mobilization.

Integration with other delivery systems offers a potential level of coverage for an ITN programme. It also creates new burdens on services that may be fragile. Under optimal circumstances, each intervention creates extra visibility and demand for the other, and service providers are not stretched beyond their ability to carry out multiple tasks. This also requires coordination. Operational research is needed to aid understanding of how this synergy can best be achieved – and how harm can be avoided.

## **2.2 Key elements of targeted subsidies**

By definition, all public health programmes are subsidized: they support individual health benefits with public money. In order to spend funds efficiently, these programmes usually target (or narrow) their support to specific *population groups*. They also target (or focus on) specific aspects of the preven-

tion/ treatment *process* connected with a health problem. In an ITN intervention, key elements of targeting include:

### **Who? – Target audience**

Most ITN programmes target *biological groups* at highest risk for malaria-associated death and morbidity. These are pregnant women and children aged under five years – particularly infants<sup>5</sup>. Most programmes also aim to reach the *poor*. Many attempt to do this by focusing on populations in rural areas where by far the greatest numbers of those in absolute poverty live. The *Strategic framework* suggests that primary targeting by socioeconomic status (SES) groups is difficult. (What criteria should be used? How will people be screened?) One strategy has been to design a product or service that encourages the poor to “self-select”. (Or rather, the product’s lower quality discourages selection by the rich). Another strategy has been to let communities decide who is most vulnerable according to criteria all agree is fair. This is a form of *social* segmentation.

*Geographical* targeting may be necessary in emergency or refugee situations. Generally, however, the malaria ecology in African countries makes geographical targeting impractical (as opposed, for example, to South Asia, where endemicity varies).

### **What? – Product and/or its distribution system**

- **Health service**
- **Enabling environment (e.g. demand creation)**

The most tangible object of the subsidy is the net and/or the insecticide itself. This may be offered at a reduced price or even free of charge. The subsidy may also be separated from the product (by distributing vouchers, for example). However, since supply is often problematic, some programmes invest heavily in the actual distribution of nets (transporting them, storing them, finding someone to sell them). Other programmes subsidize insecticide re-treatment kits, or the distribution process for re-treatment kits. Some ITN pro-

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<sup>5</sup> Participants mentioned that many health workers are now asking that HIV/AIDS and tuberculosis patients also receive nets because of their reduced immunity.

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### Lessons from targeted subsidy programmes

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**Contexts vary.** All programmes must be tailor made, adjusting to the country's malaria ecology, national policies, characteristics of the population, strengths of the health system and other channels, and maturity of the commercial ITN market.

**Contexts vary over time.** Programmes must evolve as markets (and health systems and other programmes for “piggybacking”) evolve. They must also be responsive to changes in coverage in order to remain focused on those who are vulnerable.

**Coordination means a meeting of different minds.** Each stakeholder has priorities (profit, mortality reduction, community engagement, etc.) that must be respected for a programme to benefit from complementary strengths.

**Supply is the vulnerable point of most programmes.** Supply and distribution are multifaceted (from manufacturer, to distributor, to remote retailer). Support for distribution (including micro-credit strategies) may be key to expansion. Innovation is needed, especially to reach the most vulnerable.

**Measure intended as well as unintended effects** (for positive change as well as crowding out). Examine coverage/supply of subsidized as well as unsubsidized products. How does the programme affect other programmes? How does it affect the market? How is it affecting the health system?

**A strategy for nets requires a strategy for insecticides.** Long-lasting insecticidal nets (LLINs) may still be a long way off for most countries. Even where net use is high, re-treatment tends to be low. Re-treatment strategies can also help build demand for nets.

**Know where leakage and misuse are happening.** Leakage at a high level is more damaging than downstream. Develop systems to track and adjust processes.

**Track the gaps.** Every programme leaves out some of the intended target audience. These are generally the most vulnerable. Can the strategy be adjusted to capture them? (Targeting the last 10–20% can require proportionally more resources but mean reaching those at highest risk of death.)

**Start small, think big.** Targeted subsidy programmes need to be tested at the pilot level (to assess level of subsidy, supply bottlenecks, redemption processes and leakage/fraud issues). But even pilots should include only elements that can be scaled up and “owned” by existing systems.

**Complementarity** is the key to coverage. A national programme may require several strategies. These must complement rather than undermine each other. Every strategy must anticipate the need for its own transition to a more efficient role in the “mix”.

**Measure costs as well as coverage and supply** to monitor efficiency of the subsidy and to be able to make the case to governments and donors.

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grammes subsidize a service rather than a product; they may support clinic-based or community-wide net re-treatment, for example. Almost all ITN interventions include funds for training and demand creation.

**How? – The channel for delivering the benefit**  
– **The system for administering the benefit**

*Where and when?* Programmes based on biological targeting usually reach their populations through the health system – Antenatal Clinics (ANCs), immunization campaign sites and so forth (*how often* audiences are reached is also affected by this decision). Nongovernmental organizations (NGOs) may provide channels for community distribution (e.g. women's groups). Social marketing products may be available in specific outlets. If the subsidized product is a commercial net (purchased via a coupon/voucher, for example) private sector channels may be used. Some programmes subsidize the channel itself. For example, health workers may be given incentives to distribute nets; retailers may receive commissions for handling coupons/vouchers.

*By whom?* Different partners are likely to be responsible for administering different aspects of a targeted subsidy programme. Current approaches involve diverse groups, making coordination of roles and responsibilities a primary challenge.

**How many – How long?**

*How many* will benefit (or the scale of the programme) is dependent upon the coverage capacity of the selected delivery system as well as the funds available for supply. *How long* the benefit can be sustained will also depend on source of funds, as well as the health delivery system. For example, ITN programmes that piggyback on measles prevention campaigns will only last as long (and occur as often) as these catch-up efforts are carried out.

The driving question for every programme is the first one: who will benefit? All other aspects of the programme are built around an understanding of the target audience. What access do they have to products and services? What are the relative strengths of delivery systems already serving them? What can they afford? What do they want?

## 2.3 Key variables and steps of programme design

### *Key design variables*

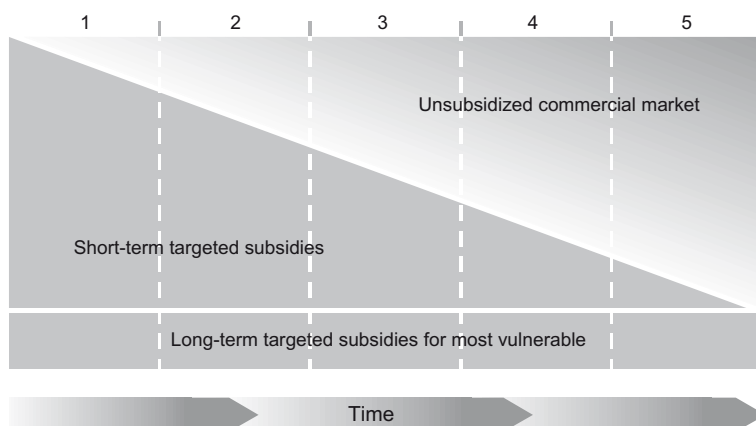
Three contextual issues discussed in depth at Lusaka influence the design of a targeted ITN programme.

**Maturity of the market.** Supply of commodities is central to every ITN strategy. The net must be delivered; the insecticide must be delivered. Often they are initially “bundled” together, but additional insecticide is needed for re-treatment. Supply is the potential vulnerable point of every net programme. It is estimated that the Abuja targets will require delivery of 32 million nets each year. Nets are bulky and are a challenge to transport and store. Ranging anywhere from the equivalent of US\$ 1–15, nets are a major investment for the average African as well as the typical storekeeper, making security also important.

The private sector has expertise in the procurement, storage, distribution and competitive pricing of commodities. To the extent that a commercial market can satisfy the needs of increasing numbers of citizens, requirements on the public sector to meet these needs will be reduced. The economic environment in a given country is therefore a critical variable in every subsidized ITN programme.

Figure 1 illustrates a range of public and commercial market mixes. On the left are countries with virtually no commercial ITN market. Only the most wealthy can find and afford a net, and the gap must be filled by public systems. On the far right are countries with mature commercial markets. Nets are acces-

sible even in rural areas and competitive pricing makes them affordable to all but the most destitute. The bottom bar represents those who will never be able to afford a net at any price.



**Figure 1.** RBM strategy for scaling up use of ITNs<sup>6</sup>

Most African countries find themselves somewhere in the middle, relying on a mix of strategies to use funds efficiently and ensure all audience segments are reached. Progressing from the left to the right of this diagram can be difficult. Transition towards more efficient and mature markets requires:

- **Supportive (or enabling) national policies** (a tax and tariff structure that does not discourage ITN producers and distributors)
- **Segmentation strategies** (that do not offer subsidized nets to those who can buy them – thus crowding out the commercial market)
- **Strategies that “prime the pump”** (creating demand for nets, which in turn encourages producers to compete and expand distribution)
- **Monitoring intervention effects** (on both the subsidized and unsubsidized segments, to ensure that populations at risk are served and markets strengthened)

Transition strategies might include co-branding and eventual transfer of a social marketing product to the commercial sec-

<sup>6</sup> Adapted from the *Strategic framework*.

tor (the route of condom branding in many family planning programmes). It might mean transforming a subsidized or free net programme into a voucher redemption scheme in subdistricts where the commercial sector is strong enough to respond. It might mean short-term support for mobile units to “prime” rural retailers, or linking women’s groups with micro-credit programmes in order to transfer the burden of supply – as well as the economic returns from nets – to local communities.

**Population/market segmentation.** Targeting involves segmentation. A targeted ITN programme represents only one part of a larger prevention picture. National programme coordinators are responsible for calculating how all biologically vulnerable groups will be reached; to ensure that both the urban and rural poor are served; to decide what degree of subsidy leakage to wealthier citizens is affordable and what percentage gap among the hard-to-reach is tolerable; and to make certain those not served by subsidies nevertheless have access to ITNs. Justification for an individual programme should be stated in the context of this overall strategy.

Audience segmentation is always linked to the question of market maturity. Who can afford what and where can they get it? Efficient and effective segmentation requires careful monitoring of other problems. For example, do biologically vulnerable and low SES groups overlap sufficiently to ensure appropriate coverage with a single strategy? (Who is actually attending antenatal clinics? What percentage of children are coming for DTP3 immunizations?)<sup>7</sup> The target population for catch-up measles campaigns (up to age 15) is different from that of an ITN programme. What is the overlap of under-fives between campaigns? Who is being missed? These issues will become more, not less, important as the initial base of coverage is achieved.

**Health system issues.** Access by the target population to a designated health delivery system is a primary design variable

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<sup>7</sup> In sub-Saharan Africa, the wealthiest quintiles are twice as likely to make use of health facilities as the poorest. Those missed by facility-based interventions are therefore likely to be the most vulnerable. Among those who do attend but miss a distribution day, the poorest will also find it hardest to return. (Source: WHO and UNICEF. *The Africa Malaria Report 2003*. Geneva, World Health Organization, 2003 (WHO/CDS/MAL/2003.1093).)



for many programmes. Concern over this easily overshadows an equally important issue: the capacity of health systems to distribute commodities. Health infrastructures are poor and worsening throughout Africa, particularly so since the advent of HIV/AIDS. Piggybacking onto these delivery systems may be impossible without offering additional remuneration (as highlighted in several workshop presentations). The extra work may or may not undermine regular services, and the incentives also may or may not have repercussions. Such unintended effects are rarely monitored and need to be better understood.

The longevity of different systems, as well as their capacity and reach, varies. Catch-up measles campaigns may provide a valuable opportunity for ITN (or voucher) delivery in the next few years. Eventually, however, these campaigns will be phased out.

### ***Basic steps of designing a TS strategy***

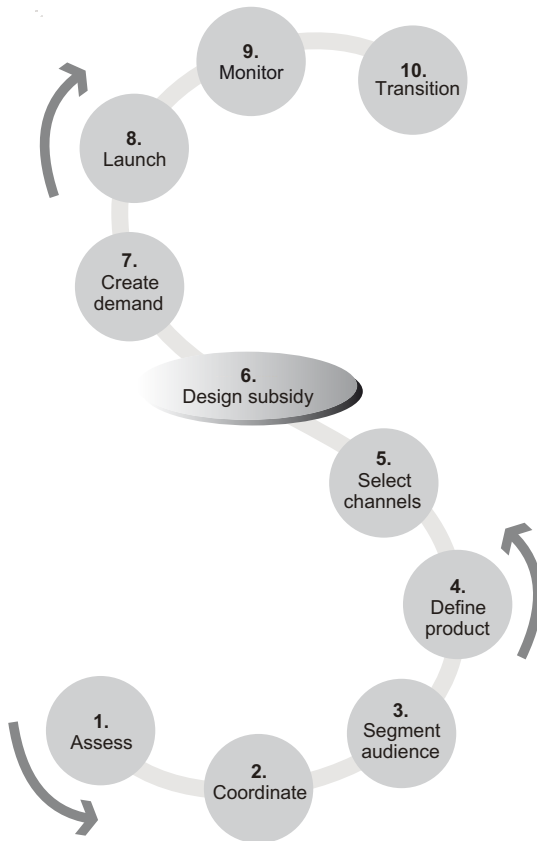
The design of a targeted subsidy (TS) strategy can be seen as a 10-step process, illustrated in Figure 2. A strong programme requires a connection between needs and resources (indicated at the bottom of the curve), and what and how appropriate benefits can be provided. The process is also iterative: monitoring should lead to ongoing reassessment of strategies, and eventually to programme transition.

#### **Step 1 – Assess**

Study target audiences and current programmes to reach them; the maturity of the market; government policies; potential delivery systems; the extent of a net culture; barriers and incentives to use of ITNs and their re-treatment; and available resources.

#### **Step 2 – Build commitment, coordinate**

Begin the process of coordinating with partners. To ensure joint ownership, start the process early – in the design (rather than



**Figure 2.** Targeted subsidy steps

the implementation) phase. Cast the net wide. Meet face to face. Advocate with government departments as necessary. Include the private sector. Make frequent contact to ensure that responsibilities are clear and that different agendas are being met.

### Step 3 – Segment target audience (*Who*)

Describe exactly who will be reached. Analyse how different segments might or might not overlap (biological and SES for example). Calculate both estimated leakage (to those not in need) and percentage of those likely to be missed (nonparticipating high-risk). Provide a rationale for this segmentation in the context of other existing strategies. Include those who are excluded from subsidies.

**Step 4 – Define product or service (*What*)**

Describe the specific product and/or the distribution system that will be subsidized; the service that will be subsidized; and/or the supportive activities that will be subsidized.

**Step 5 – Designate the delivery channel and administrative responsibilities (*How*)**

Indicate where and when the target audience will be reached (through what delivery system) and also which partners will be responsible.

**Step 6 – Design the subsidy**

Specify the form and size of the subsidy and sources of funding, and describe any new (subsidy-related) processes that must be attached to ongoing systems to ensure delivery and tracking of the subsidy. Cost out the programme (start-up as well as projected costs over the mid- and longer-term to gauge sustainability). Make decisions as part of a joint process with partners.

**Step 7 – Train, test, create demand**

Prepare the system to deliver the subsidy and serve clients. Prepare clients to demand and use the subsidy. Adjust systems according to feedback received during this preparatory phase.

**Step 8 – Launch and manage**

Ensure that all components are synchronized and that different parts of the system understand each other and their roles. Ensure smooth, coordinated implementation and motivated players.

**Step 9 – Monitor and adjust**

Track progress and highlight both what is working and what needs to be changed. Select indicators to examine coverage (both subsidized and unsubsidized markets); source of products (subsidized and unsubsidized); effects on the delivery system and on the supply; cost; leakage/fraud.

**Step 10 – Plan exit/transition strategy**

Determine at what point the strategy will no longer be needed/appropriate/feasible (via key indicators or associated health service phase-out). Propose variations in the strategy that will allow for a smooth transition to more efficient coverage of the target audience.

These steps are outlined in more detail in Annex A.





### *3. Approaches and better practices*

Four approaches highlighted at Lusaka are discussed here as country examples. They are not exhaustive, but represent a selection of what has been tried in a limited range of local conditions.

Many of the experiences presented below were pilot programmes, or are just being taken to scale. The realities of implementing most programmes at national level are still to come. Moreover, cost data associated with the approaches were not adequate for making useful comparisons. Nevertheless, insights can be drawn from the various programme successes as well as their shortcomings. These are analysed below according to principles outlined in the *Strategic framework*. In particular, the discussions of *coverage and equity*, of *market effects*, and the final summary of *advantages and challenges*, reflect that consensus deliberation.

The approaches are arranged here in order of ITN market maturity – that is, starting towards the left of Figure 2. None address the situation of free nets for all citizens (e.g. in a complete emergency situation that might exist in Phase 1). Nor do any address phase 5 (where low-priced commercial products would be accessible to all citizens). All of the approaches aim to reach specific segments of a given country population in the context of a market that is mixed and changing.

### 3.1 Free nets provided via health services

#### *Description – (who, what, how)*

In this first approach, nets are procured on the international market through donor contribution, delivered to peripheral areas and distributed free of charge to biologically vulnerable groups during specific, time-limited contact with the health system. The variations described at Lusaka included:

- providing ITNs free of charge to caretakers of children under five during measles campaigns;
- providing ITNs free of charge to pregnant women during visits to ANCs.

The subsidy (public and donor funds) covers the full cost of treated nets; the procurement and actual delivery of nets to clients; and, to some extent, community information and demand creation.

Theoretically, the Lusaka examples could be scaled up to national levels. However, national programmes would vary from these pilots in several respects. In particular, distribution through ANCs would be an ongoing process – while the example here is that of a time-limited campaign. One-time or sporadic distribution of free nets is challenging through a “routine” service, because women ordinarily visit ANCs only once or twice late in pregnancy. An ongoing distribution system would capture more women. It would also require additional inputs, such as net storage, delivery and administrative systems and incorporation into ANC training, supervision and work routines. Distributing ITNs through measles prevention campaigns would not vary as greatly when scaled up because that strategy coordinates with an already pulsed-type mobilization effort. At scale, however, the approach would still confront a “duration” issue – i.e. phase-out when measles catch-up programmes end.

The funding required for large-scale, sustained free net programmes cannot be met by current levels of donor com-

mitment. National-level free net programmes are therefore unlikely at this time.<sup>8</sup> Delivery of free nets is usually limited in duration and geographical scope by donor interest and priorities. Supply may or may not coincide well with any conveniently circumscribed needs. One important challenge is to take good advantage of what might be called a “windfall” and integrate it into a long-term strategy. The discussion here examines free net approaches within this complex context.

### ***Context – the essentials***

Delivering free ITNs to biological target groups through these channels may be most effective in regions with poor commercial *and* poor subsidized market development but with relatively strong health services. The underlying health programmes must reach large percentages of their target populations for the investment in ITNs to result in high coverage.

Another essential element is a good medical supply system. Success depends upon efficient, massive distribution from the central to peripheral levels (a programme will therefore be significantly less costly if it can also piggyback onto a commodity delivery system already operating).

Since nets are distributed free in a limited area and for a limited time, planners should examine the possible effects on any other ITN programmes (such as community-based systems or a fledgling commercial market). Careful targeting combined with effective communication can minimize the effects on other distribution systems. When ITNs are distributed in a limited area, plans should also be made to deal with possible political or social repercussions (someone is certain to ask why one group gets the nets rather than another, as happened in the examples here).

Finally, the dual piggybacking on other systems may have both positive and negative effects on existing health programmes. Anticipating and monitoring both the new benefits and burdens

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<sup>8</sup> This document does not address the ongoing dialogue within the development community regarding the ethical and economic issues related to delivery of free nets (either to specific segments of populations or to all citizens). Many argue that ITNs should be provided at scale and on a sustained basis by governments and donors in the same way as, for example, other ANC services and childhood vaccines.



arising from the addition of ITN delivery onto a programme will help ensure synergy.

Participants at Lusaka provided two examples (see box):

- **Children under five reached through measles prevention campaign – Ghana:** in one district with a total population of 90 642 (target population of 28 973 under fives).
- **Pregnant women, reached through ANCs – Kenya:** in 35 (out of 72) districts with a total population of 17 187 976 (target of 864 900 pregnancies)<sup>9</sup>.

### *Coverage and equity*

**Reaching children.** Equitable distribution of ITNs through a measles prevention campaign is potentially high, given the average coverage of catch-up campaigns in Africa (more than 90%). Issues include:

- Calculating the number of nets required at individual health facilities or outreach sites. (If supplies run out, this may also undermine demand for the other intervention, as happened in one example.)
- Deciding how many nets to give a family and whether/how to record this (one per family or per child? Recorded on the vaccination card?)
- Devising a long-term coverage strategy for this age group (because measles prevention campaigns are intermittent and will eventually be phased out).

In the Ghana pilot project, 93.2% of eligible children received measles vaccinations during the campaign.<sup>10</sup> During exit interviews, 78.7% of mothers who attended with a child aged under five years said they had received a net. Among caretakers (interviewed in a post-campaign household survey) who said

<sup>9</sup> Kenya Malaria Information Service (KMIS). Data accessed for 2002. KMIS, Division of Malaria Control/MOH. [www.KMIS.org](http://www.KMIS.org) (accessed 9 November 2003).

<sup>10</sup> Unless otherwise indicated, all data included on approaches were provided by the presenters about their respective programmes during the workshop.

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## Examples

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### **GHANA – For children, through a measles prevention campaign**

In December 2002, a pilot project in Lawra district took advantage of 14 600 ITNs donated for distribution during a measles prevention campaign. Collaborators included the Ghana Health Service, the Ghana Red Cross, the American Red Cross, Rotarians Against Malaria, ExxonMobil, the United Nations Children's Fund (UNICEF) and Agrimat Ltd. The latter two groups procured and transported nets to Accra from Viet Nam. Red Cross vehicles delivered the nets to the district and on to the 10 subdistricts. Local health personnel then collected the nets and brought them by local transport (motorcycle, land rover) to the 28 vaccination posts.

Products included 4 520 long-lasting and 10 090 pre-treated nets. The Red Cross trained volunteers to distribute one net to every family with a child under five. During campaign exit interviews, 78.7% of eligible caretakers said they had received a net.

### **KENYA – For pregnant women, through ANCs**

In May 2002, the Government of Kenya, UNICEF and WHO collaborated to provide free nets free to women attending antenatal clinics (ANCs) in 35 districts. UNICEF purchased nets in the United Republic of Tanzania, and the United States Agency for International Development (USAID) DELIVER Project transported them to the districts. Clinic staff collected the nets and transported them (by public bus, motorcycle) to ANCs.

The procurement included 70 000 nets and re-treatment kits. Each district received 2 000 nets. Clinics dealt with treatment individually – some dipped nets a few at a time before distribution; others gave mothers nets with kits and instructions. About 15% of nets went out untreated and without kits.

Within 12 weeks, 53% of nets were distributed to end-users, and about half the remaining ITNs were estimated to have reached ANCs.

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they had received a net, 60.2% said their youngest child had slept under it the previous night.<sup>11</sup> The first gap points towards challenges regarding supply and distribution; the second to communication and behavioural issues (see below).

**Reaching pregnant women.** Campaign-style delivery of nets through ANCs faces the challenge of reaching women who

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<sup>11</sup> Grabowsky M et al. Mass distribution of insecticide-treated bednets during a measles vaccination campaign: methods and costs (unpublished manuscript).

would ordinarily attend the clinic at different times throughout the year (as mentioned above, the issues would be quite different if free nets were incorporated in regular service delivery). Coverage issues include:

- a shifting population (every month an additional group who is “only eligible” for nine months);
- variability in different cultures regarding months during which women will actually attend the ANC. (In some countries women will not discuss a pregnancy until it shows, reducing this “window”.<sup>12</sup> However, in some countries provision of ITNs has encouraged earlier attendance.)
- correctly estimating the number of nets required for individual facilities in this context.

In Kenya, each district included was designated to receive 2000 nets for distribution to ANCs towards the end of May 2002 (to commemorate Africa Malaria Day). Each district also decided how it would allocate these nets to individual clinics. Of the total procured, 53% were distributed to women by mid-July; 77% of the nets that reached the districts were estimated to have been distributed to individual ANCs by this time.<sup>13</sup> Among women interviewed who attended the clinics during the weeks that nets were available, four-fifths said they received nets. It is difficult to calculate what proportion of eligible women in the different districts were actually covered (pregnancies in these districts totaled 864 904 in 2002<sup>14</sup>). As a result of various delivery problems, five districts did not receive nets.

Most clinics had insufficient nets for those who attended during the campaign period. Consequently, some nurses gave nets only to women from high malaria-risk areas.

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<sup>12</sup> In Africa, about 40% of pregnant women visit an ANC for the first time in the second trimester; about 25% in the third trimester. (Source: UNICEF, WHO. *Antenatal care in developing countries: promises, achievements, and missed opportunities. An analysis of levels, trends, and differentials, 1990–2001*. Geneva, UNICEF, WHO, 2003.)

<sup>13</sup> Guyatt HL et al. Free bednets to pregnant women through antenatal clinics in Kenya: a cheap, simple and equitable approach to delivery. *Tropical Medicine and International Health*, 2002, 7:409–420.

<sup>14</sup> KMIS, 2002.

In both approaches, supply, transport issues and the challenge of estimating the number of nets for given health posts heavily influenced coverage. In this case, both campaigns were also one-time opportunities intended to test certain strategies and advocate for further scaling up.

### ***Effect on other ITN programmes (and market maturity)***

This approach provides free nets to an entire biological group (without SES limitation) and can therefore be expected to affect other net programmes in the area. Theoretically, the approach is best suited to areas where no commercial market for nets is available or is being encouraged to develop. This also makes sustained funding on a large scale essential if coverage is to be maintained.

Large-scale public distribution of nets over a short period of time raises awareness and may contribute to growth of a net culture. If and when campaigns are transitioned out, they can be expected to leave some legacy of increased demand. As such, they serve to prime the market (on the consumer side) over the mid term but are likely to crowd out development of other sources in the short term.

Ironically, a free net programme that is only partially successful will coexist best with any other ITN programmes in the area. For example, Kenyan programme personnel considered the number of nets distributed to be too low to replace potential net sales. There was a sense that the programme served chiefly to raise awareness and therefore might actually increase sales. However, a free net programme that creates demand it cannot satisfy undermines the credibility of the health system.

Given the cost of free net programmes and the difficulty of sustaining them, one approach is to distribute free ITNs only in areas of urgent need. However, this can create problems unless the area is quite isolated (or clearly identified as an emergency situation). In Ghana, planners intended to distribute nets in selected subdistricts, but the District Assembly considered this

politically unacceptable (as it was, other districts complained they were excluded).

### *Effect on the health system*

Initiating a coordinated campaign involving different sectors of the health system – and multiple nongovernmental groups – is a large undertaking. Implementers in the Ghana and Kenya programmes considered that planning could have started sooner, and face to face meetings of representatives were critical. In both cases, teams external to the government handled procurement and the heaviest levels of distribution. DELIVER (a USAID project) managed transport in Kenya; the Red Cross provided transport in Ghana. This saved programme costs and greatly reduced the logistic burden.

A local health system must be prepared to manage the (often unexpected) bulk of nets at the campaign site and at least the last leg of transport. In both countries, health workers carried nets on buses, motorbikes and in land rovers. In any campaign situation, health providers must suspend their regular duties and manage many new tasks. The extra burden of ITN distribution can be reduced (as in Ghana) if volunteers are trained to interact with clients, distribute nets and complete necessary records.

Theoretically, delivering two popular goods or services in one location should create extra public demand for both commodities. However, the Ghana programme found that 24.8% of those who attended vaccination posts had been motivated by the promise of an ITN.<sup>15</sup> The Kenya programme found no such effect, but no demand creation activities were conducted.

### *Fraud/leakage*

As in most net programmes, fraud is apt to be most serious at the upper levels of the system. Transporting large numbers of nets can create special challenges as well as temptations.

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<sup>15</sup> Grabowsky M, Linking distribution of insecticide-treated nets to a measles vaccination campaign achieves high, equitable and rapid coverage at low cost (Bulletin of the World Health Organization, March 2005, 83 (3)).

Under campaign situations, the pressure to deliver on a tight schedule requires fastidious tracking.

The main problem detected in both Ghana and Kenya was non-delivery of nets due simply to transport problems. (In one district, the health officer mistakenly thought he could transport nets on his motorbike.)

Both programmes also found that leakage of nets took place “within the system” and was largely due to competing priorities. One district in Kenya decided to give nets to caretakers of children under five (although they were designated for pregnant women). Most unaccounted leakage took place at large district hospitals. Only 4% of nets went unaccounted for at the ANC level.

Tracking of individual nets is also important. In these countries, health workers used existing registers of beneficiaries to record nets distributed. In Kenya, supervisors compared ANC attendance registers with the numbers of nets delivered to facilities in order to detect problems. In Ghana, a follow-up survey after about 11 months found that, 2% of beneficiaries interviewed had sold their nets. This could be expected to become a bigger problem as the number of families owning at least one net increases.

Leakage to other beneficiaries is another common problem that must be addressed by communication messages.

### ***Promotion and behaviour change***

Nets are a valued commodity in virtually all African countries. News of free distribution can be sufficient to attract queues of people. However, appropriate use of nets can be complex. Key issues include:

- who the net is for (who is eligible);
- who in the family should be given priority for sleeping under the net;
- when the net should be used (all year round);

- how to hang the net;
- how to treat and/or re-treat the net.

During campaigns, the sheer logistic challenges of transporting nets, combined with the short amount of time a provider has to interact with a beneficiary, can easily detract from the need to communicate about behaviours. Poor or untested messages can also do harm.

The Kenya programme experienced some of these challenges. Communities did not learn about the campaign per se, but were exposed to general messages about nets in connection with Africa Malaria Day. The evaluation found that only one-third of women who attended ANCs during the distribution period knew ITNs were being offered. About 21% of women who received nets did not use them until they had given birth because nurses had told them nets were “for the baby”.<sup>16</sup> Only half of those who did receive a net were told about re-treatment.

An evaluation 11 months later found that 90% of nets distributed remained in households. In one high malaria-risk district, 84% of women who received the nets used them during their pregnancies, and 91% of infants were protected; in a low malaria-risk district, 58% of women and 80% of their infants slept under the nets.<sup>17</sup>

In Ghana, pre-campaign preparation included house-to-house visits by Red Cross volunteers. Nevertheless, a household survey five months after the campaign found that, among families who said they received a net, 60.2% said their youngest child slept under it. This may have been partly due to the season (nets were distributed during the dry season) and lack of understanding that nets should be used year round. However, it may also indicate challenges in targeting the under fives per se. Another problem was that both pre-treated and long-lasting insecticidal nets (LLINs) were distributed, making uniform messages difficult.

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<sup>16</sup> Guyatt H, Ochola S. Use of bednets given free to pregnant women in Kenya. *Lancet*, 2003, 362:1549–1550.

<sup>17</sup> *Ibid.* Only women who had not previously owned a net were asked to respond.

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## Reflecting on the approach

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### Advantages

Advantages of the approach include:

- access to specific vulnerable, biological target audience;
- equity of coverage potentially the same as that of an ongoing health interventions;
- no cost to recipients;
- reduced (peripheral-level) distribution costs due to piggybacking;
- potential for synergy of demand creation between ITN and other health interventions;
- awareness and demand creation (through appearance of many nets in the community);
- opportunity to provide instruction on use and treatment of nets.

It has been suggested that providing nets also strengthens the delivery system of the piggybacked intervention. Evidence has yet to be provided for this, and the reverse is also possible. Monitoring to ensure synergy between the interventions is important.

### Major challenges

Primary challenges include:

- the purchase price and procurement of nets (beyond what can be managed by a ministry of health);
- massive, time-sensitive delivery of nets from manufacturer to peripheral level;
- participation by health providers in final leg of ITN transport;
- intensive coordination and communication among many partners;
- training and added burden for health providers in multiple tasks (possibly including net treatment);
- strong community mobilization and information about net use;
- crowding-out effects on other programmes;
- difficulty of transitioning to other approaches.

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Health providers need training to understand who is eligible; how to keep records; and what should be discussed with recipients – including messages about net use and re-treatment. Providers may also require training in how to treat nets and how to conduct dippings at the clinic. In Kenya, distribution was delayed in some clinics by the time required to dip nets and the lack of water on certain days.



Piggybacked campaigns may or may not take place during the most appropriate season, creating further behavioural issues. Community re-treatment programmes are generally held on Africa Malaria Day, but measles prevention campaigns are not.

### *Exit/transition strategies*

Free net strategies may be difficult to progress beyond because they tend to crowd out other programmes, as well as other sources of nets. Once launched, they are also difficult to scale down from for political reasons. In reality, however, free net programmes are usually driven by donor interest and are limited (in terms of coverage) by supply and uncertain funding. In both Ghana and Kenya, the campaigns were one-time events.

Malaria control programme planners may choose to approach donors for funding to support campaigns for free ITNs. In such cases, equally important challenges are to anticipate repercussions in areas without nets or among populations with insufficient supplies; to examine options for the likely period *beyond* the availability of free nets, and to plan *around* free net programmes so that non-targeted populations are also ensured a source of ITNs.

### *Variation on the approach*

#### ***Insecticide treatments procured and distributed free during specified contact with health system contact***

Free, mass distribution of insecticide treatments through a similar piggybacked health delivery approach has many of the same advantages but few of the challenges of distributing nets in this manner. (This approach has been adopted in the Tanzanian national scheme.) Major differences include:

- procurement and delivery can be paid for and managed directly by the health system (cost of re-treatment is a fraction of that for nets; kits can be transported by post);

- distribution will complement rather than crowd out other ongoing net programmes, including commercial distribution;
- focus of information and demand creation activities on re-treatment per se ensures that this often missed message receives focus;
- re-treatment programmes create awareness and demand for nets (the reverse is not always true).

## 3.2 Subsidized nets sold via health services

### *Description – (who, what, how)*

In this approach, nets are procured on the international market through donor assistance; packaged with insecticide as a specifically “branded” product; stored in a dedicated system of warehouses; distributed to public health clinics; and sold at subsidized prices to pregnant women and mothers of children under five as part of the regular service delivery programme.

The subsidy includes the cost of nets and packaging; the procurement, storage and delivery of nets to the clients; training of health workers; inventory and financial management; and, to some extent, community information and demand activities.

In the example discussed at Lusaka, dual branding was an important aspect of the approach. One product is a highly subsidized net sold at health facilities; the second is a revenue-earning net for retail sale in urban areas. This segmentation strategy may contribute to reduced leakage to wealthy groups. It relies on both self-selection (different groups want a different product) and presumption of a strong urban/rural socioeconomic split (different groups have access to different products). The expensive net also brings in money to support programme costs.

In the example presented at Lusaka, Population Services International (PSI), an international NGO, developed and pro-

motes both brands. In countries where a commercial market exists in urban areas, only the subsidized brand would be needed. However, loss of the second brand would mean loss of cross-product programme revenue.

### *Context – the essentials*

The approach may be successful in regions with poor commercial market development but good access to antenatal and under-five clinics throughout the country (particularly in rural areas where the most vulnerable populations are located).

In this PSI approach, the programme builds and staffs its own distribution system out to the peripheral levels. Start-up costs required may be substantial (warehouses, trucks and a complete inventory system) but are comparable to that of a commercial sector operation. Local health workers are essential members of this team. They receive training and a safe is constructed in the health center for money collected from mothers. Success depends greatly upon strong commitment by local health staff. This is partly ensured by a commission on their sales (any possible unintended effects of their extra tasks, and the monetary incentive, are areas for study).

Another key element in the approach is regular field supervision. In the Malawi example described here, district health managers are partners in this process; full government administration of the programme would be too labour-intensive for most countries. The approach requires sustained involvement by a contractor or international NGO. These costs are also a factor in the subsidy.

### *Example – Malawi (see box)*

Participants at Lusaka provided one example:

- **Pregnant women (and children under five) reached through ongoing clinic-based services – Malawi:** rolled out to 26 districts nationwide, primarily in

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### Example

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#### Malawi national programme

**Context.** In Malawi, 90% of pregnant women attend the ANC at least once during their pregnancy. DTP3 coverage is 88%. Eighty percent of the population lives in rural areas. Until recently, a 35% tariff on textile imports has discouraged growth of a commercial market for nets.

**Management and scale.** Building on a 1998 district pilot, Population Services International (PSI) launched its facility-based ITN programme in 2000, with nationwide roll-out completed in 2002. The programme has trained 280 district staff and 1832 nurses.

**Cross-subsidizing of nets.** The programme pays for a portion of its running costs through the sale of a branded, blue conical net (attractive to wealthy customers) in urban outlets. Clinics sell a branded, square green net at a subsidized price (both locations also sell PSI re-treatment kits.) About 100 000 blue nets and 1 million green nets have been sold to date. In 2002 a total of 374 461 nets were sold. However, since May of 2003, about 100 000 nets are being sold per month (90% are green). About 40% of revenues have come from the blue net.

**Distribution and management.** Nets are procured and donated by UNICEF. PSI manages the complex delivery, storage and distribution system – using 4 dedicated warehouses, 3 five-tonne trucks, 6 land cruisers and employing 12 full-time and 6 part-time staff. PSI also provides training to the ANCs, supervises reconciliation of clinic records, collects the funds on a regular basis and pays nurses their commissions.

**Supply and coverage.** Since May 2003, about 100 000 nets have been sold per month (90% are green). Genuine demand at the current price is estimated to be 150 to 200 000 nets per month for at least one year. Nationwide, about 25% of families now own at least one net (compared with about 7% in 1998).

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rural areas—total national population of 11.7 million (with 676 250 pregnancies per year and 2.23 million under fives).<sup>18</sup>

#### *Coverage and equity*

The approach is designed to reach a biological target group but also aims to capture low SES groups through a strong urban/rural segmentation. Coverage issues include:

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<sup>18</sup> EHP Working Group. *The Malawi essential health package, 2002/2003 FY Plan of Action*. Malawi, EHP Working Group, Ministry of Health and Population, 2002 (data are projections for 2003 as cited from the National Office of Statistics).

- potential to reach biological targets with the same coverage as that of the regular health service system;
- potential to achieve same equity as that of the regular service delivery system;
- need for a strategy to reach biological target “missed” by the regular system (10% or more of pregnant women – about 12% of children under five);
- need for a complementary strategy to reach non-biological poor in rural areas.

High coverage greatly depends upon getting the cost of the net accurate. In Malawi, the price of bundled ITNs was reduced gradually from about US\$ 2 each to US\$ 0.65. After the last drop, demand surged.

The regularity of supply has a strong effect on both coverage and equity. Even under conditions of international contracting, supply can be a problem. In Malawi, some clinics have had long stock-outs (since May 2003, however, the manufacturer has been delivering more than 100 000 nets per month). Delivery channel also has an effect on equity. Since pregnant women are likely to visit the ANC only once, this visit *must* coincide with the day nets are available. Those who live close by (and are therefore less vulnerable) would be better able to return. In Malawi, nets are delivered once a month and typically sell out within 2–5 days.

As always, household coverage surveys are needed to confirm what happens to sales, particularly since supply can be intermittent. (Is the system reaching under-fives as well as pregnant women? Do those who live close by purchase more nets than those who are distant? What happens to nets as coverage rises and some families qualify for a second or third?)

### ***Effect on other ITN programmes (and market maturity)***

Sales of the products (and in Malawi, intensive promotion of the up-scale ITN) contribute to the growth of a net culture and encourage ITN purchases by all audience segments. Each prod-

uct benefits from the availability (and visibility) of the other. In Malawi, as the subsidized net became increasingly available nationwide, sales of the unsubsidized brand also rose. (In 2003, those sales were 30% higher than in 2002, providing an ever-increasing resource for programme running costs.)

However, the dual-branding aspect of this programme – and the reliance upon a cross-subsidy – makes competition (including from the private sector) undesirable.

Since the subsidized brand is strictly forbidden from being sold in retail outlets, a complementary strategy must be available to serve those among the poor without access to health facilities (or those who do not qualify biologically). In Malawi, a community-based approach operated by NGOs was intended to fill this gap (described in the next section).

### ***Effect on the health system***

Both positive and negative effects of this approach on the routine delivery of health services have been postulated, and monitoring of both intended and unintended effects is important.

As with the free net approaches described earlier, some assume that the demand for ITNs also increases utilization of other health services. However, no data exist about whether those who queue to purchase nets also queue for other services – or whether nurses are then distracted from their other duties. Logic suggests that both the added work and the incentive itself have the potential for detracting from other services. For a woman who only attends the ANC only once, the day when she can receive a net may be the day when services are stretched thinnest.

PSI believes that, in Malawi the process of selling ITNs has not undermined attention to areas of health delivery. UNICEF, the National Malaria Control Programme, PSI and WHO are currently conducting a qualitative field study of such practical issues.

Incentives are considered essential to this approach, to motivate and compensate nurses. In Malawi, the head nurse receives a

20% commission for each net sold. The programme deals only with this staff person, who then decides how the funds will be dispensed. This streamlines management, and the programme assumes that the nurse rewards others fairly in order to keep them motivated. It is unclear how equitable the system becomes in individual clinics, or what the repercussions are for staff relations. In Malawi, there have been no reports of repercussions regarding the allocation of the nurse incentive. This would be another area for monitoring and/or operational research.

When run by an external agency, the approach creates little burden on higher levels of the health system. A degree of involvement is essential to ensure government ownership of the programme. In Malawi, every supervisory visit is to be made by a joint PSI/district health team (the district health person participates in about 70% of visits). This helps to ensure that district health management teams (DHMTs) identify with the programme and that nurses understand they are not working for PSI but that PSI is supporting a DHMT activity.

### ***Fraud/leakage***

The approach requires comprehensive inventory control, management of large amounts of cash dispersed to peripheral areas and tracking at all levels. Clear procedures must be followed in the clinic to ensure that:

- only one net can be sold per eligible health card;
- each health card is stamped at the time of purchase;
- a receipt is issued for each net sold and unsold nets do not leave the facility;
- cash is kept in a special safe built into the clinic floor;
- cash/stock reconciliation is demonstrated before the nurse's commission is paid.

In Malawi, revenue from the nets is collected during supervisory visits once or twice a month. Supplies have been suspended to a small number of clinics whose records could not be reconciled. So far, nurses have not sold nets to non-eligible customers because supply has not yet kept up with demand from the biological target audience. As this situation changes (nets for biological groups reach replacement level or supply speeds up), this may also change.

Leakage to the local commercial sector has not been a problem because of clear branding. Each subsidized ITN bears a “not for sale” stamp, and the few stray nets found in stores have been confiscated. However, some nets have been found in a neighbouring country. Cross-border black market of cheap nets could be a threat to markets in those countries and needs to be carefully monitored.

### ***Promotion and behaviour change***

The presence of ITNs at the clinic promotes their importance for both health provider and attendee. The distribution also provides an important opportunity for dialogue.

Training for health staff must include substantial time on supply and inventory management. In Malawi, district-level training requires one full day, as does training for nurses. This also includes a focus on behavioural issues.

In Malawi, only the commercial product is heavily promoted. The subsidized product is presumed to sell itself because of the low price. Re-treatment kits have not been selling well. As in any net distribution programme, re-treatment messages tend to get diluted (or lost) in the effort to distribute the nets. (Malawi is moving to a campaign approach for re-treatment.)



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## Reflecting on the approach

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### Advantages of the approach

Advantages of the approach include:

- access to specific vulnerable, biological target audience;
- equity of coverage potentially the same as that of an ongoing health intervention;
- sales location (health facility) facilitates provider–client dialogue about correct use and malaria prevention;
- low cost to vulnerable groups;
- programme running costs fall as coverage increases;
- cross-subsidy helps offset programme running costs;
- approach has been launched and is running at scale.

### Major challenges of the approach

The primary challenges of this approach are:

- purchase price and procurement of nets (beyond what can be managed by a ministry of health);
  - complex distribution and supervision system beyond the capacity of government;
  - dual-branding and cross-subsidy depend upon monopoly of the ITN market;
  - effect of extra burden (and incentive) on health workers is not known (monitoring in progress);
  - “gap” in coverage to pregnant women because once-monthly distribution within an ongoing service delivery system is not known;
  - requires a complementary programme for non-biological vulnerable groups (because commercial market will not develop);
  - leakage to other countries should be monitored.
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### *Exit/transition strategies*

Transition strategies might be aimed at:

- opening up to the growth of a commercial ITN market;
- transferring management of the programme from an NGO to the government;
- reducing the burden on the individual health worker.<sup>19</sup>

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<sup>19</sup> In Kenya, for example, health workers distribute vouchers for a subsidized product (and hence handle neither nets nor cash). Vouchers can be redeemed in retail outlets, where the programme focuses its distribution efforts.

The approach becomes less expensive per ITN as it scales up. Initial investment in infrastructure can be amortized over a long period. The cost of commodities is reduced by increasingly larger bulk procurements. According to PSI, the cost per net delivered in Malawi is now less than US\$ 2.00, which has not been matched by any other programme.<sup>20</sup> Programme running costs continue to be offset by the cross-subsidy – which presumably generates more and more revenue. This will continue so long as sales are not undermined by the appearance of other brands. In Malawi, tariffs on imported textiles have just been reduced; it will be interesting how the market responds and the programme adjusts.

The approach relies on donor nets and donor funding of an entire supply, storage, distribution and incentive system. It also relies on efficient administration. There is no experience to date of such a programme being managed by local organizations (public or private). Governments typically do not have the human resources or the experience to manage such an operation. In theory, however, local management would reduce long-term donor dependence to some extent.

### **3.3 Subsidized nets sold via the community**

#### *Description – (who, what, how)*

In this approach, nets are procured and provided to community-based organizations (usually through one or more parent NGO), then sold to vulnerable groups at subsidized prices. Selection of target audiences varies (and may be biological or social/socioeconomic). A percentage commission from sales is returned to the community groups. They also receive training – usually from both the parent NGO and the primary ITN management group.

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<sup>20</sup> This price includes the bundled net and all programme running costs. It also incorporates support from the cross-brand revenues. The price does not include initial programme start-up investments.

Participants described an approach in which nets are centrally procured and donated by a donor agency, transported to a dedicated system of warehouses managed by an external agency (where they are packaged with insecticide) and then collected by the parent NGO(s) and distributed to the community level. A variation on this approach included training and administrative support by DHMTs.

Several community-based net programmes are being carried out all over Africa. Other common variations include less centralized net procurement and distribution systems (nets may even be stitched by group members) and many different cost-reimbursement schemes (including revolving funds, “sunset” schemes, micro-credit schemes and so forth). Such variations will naturally affect the cost of the programme.

### *Context – the essentials*

This approach is particularly appropriate in regions with little or no access to affordable commercial nets, and with or without good access to health clinics. It is sometimes set up in order to complement facility-based distribution and fill the gap in ITN access for the hard-to-reach. Generally, however, selection of beneficiaries is left to the local group. Targeting may be biological or according to criteria for vulnerable citizens established by the parent NGO or the local community (it might also be defined in the national ITN strategic plan of a country).

Community empowerment and decision-making is usually a key part of this approach. Similarly, decisions about what to do with the commissions received from the sales of nets are usually the responsibility of community groups.

NGOs are known for their capacity to reach those without access to formal government systems. In given situations, however, there may be many reasons to work with and through NGOs beyond the need to fill a gap in coverage. Their credibility among local groups, and established partnerships with the government, may be reasons for collaborating in ITN distribution.

In the country examples described below, the programmes benefit from a good medical supply system reaching from the central to the peripheral levels. In addition, a strong parent organization for the network of community groups is essential. Major responsibility for financial management and accountability rests with the parent organization.

### Examples – Malawi and Mozambique (see overleaf)

Participants at Lusaka provided two examples:

- **Rural, hard-to-reach populations served by community-based groups – Mozambique** (two districts in Zambezia Province, remote rural area, total population of 400 000).
- **Rural, hard-to-reach populations served by community-based groups – Malawi** (primarily in remote rural areas and aimed at 10% of population without access to health facilities; total national population of about 11.6 million, with about 1 million targeted).

### *Coverage and equity*

By definition, community-based programmes segment audiences first by local catchment area. Desired coverage (of vulnerable groups) is then refined further – according to criteria set by the NGO or local group (or by the government). These factors determine who is *eligible* and what the potential *equity* of coverage is, as well as the target numbers.

Programme success may not necessarily be reflected in high coverage data. Efficiency in reaching the *hardest* to reach is always difficult, but those who are served may also be the *most* vulnerable, resulting in a disproportionate number of lives saved. A local organization may also have other qualitative measures for success. Reaching an understanding on these various goals, developing appropriate process and outcome indicators, and negotiating how they are measured are important partnership tasks.

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### Example

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#### Mozambique

Only 40% of Mozambique's rural population lives within 20 km of a health facility. To address this gap, ITN sales were introduced in Zambezia Province as an option for community councils (CCs). Their sales complement those at ANCs and through social marketing. The pilot began in two districts in May 2000 and has recently expanded to an additional five. The programme is a collaboration between the UK Department for International Development (DFID), UNICEF, World Vision (WV), PSI and the provincial government.

**Integrated development activity.** WV works at the local level through these CCs – formed initially as part of their area development programme (a community capacity-building effort). The CCs consist of volunteers, who undergo several months' training in participatory methodologies to assess local needs and select priority activities. The CCs are all in remote rural areas, normally 15 km or more from health facilities.

**Local accountability.** UNICEF procures nets and insecticides and delivers these to a PSI warehouse, where they are packaged and stored. WV is responsible for collecting the nets and distributing them to the CCs. WV also administers the programme at the community level, collects money for nets sold, provides the sales commission to the CCs and oversees all accountability.

#### Malawi

PSI and UNICEF assist a community-based programme in Malawi to serve the approximately 10% of rural communities without access to health facilities. The programme sells about 100 000 nets per year.

Procurement, delivery and storage are managed according to the same process described under the previous facility-based approach. However, NGOs and district health management teams collect the nets and deliver them to local communities. Nets are sold by village health committees or by groups associated with local NGOs.

The product is bundled and unbranded. Its subsidy is half that provided for nets distributed at clinics, based on the rationale that non-biological groups benefit.

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Lusaka participants described two programmes facing different coverage situations. In Malawi, about 90% of women visit a health facility at least once during their pregnancies. The 10% missed by this programme generally live in remote areas and can be served by a community-based approach. In Zambezia Province (Mozambique), only 40% of the rural population live

within 20 km of a health facility. Availability of ITNs through some community-run system is a primary, rather than a secondary need.

In Mozambique, World Vision works with community councils (CCs) established according to the principles of their Area Development Programme (and UNICEF's human rights based approach to programming). CCs were formed in two districts of Zambezia Province beginning in mid to late 2001. The target audience consisted of approximately 90 000 pregnant women and children aged under five years. By April 2003, 29% of the target audience had received nets. Coverage varied greatly by area, depending largely on the amount of time a CC had been active. In Qelimane district, 62% of the target audience had been reached; in Mocuba district, 25% had received nets. CCs are established on a rolling basis, and training/community preparation takes about four months before nets are sold. This type of intensive preparation and slow start-up is typical of participatory community activities.

The community-based programme in Malawi provides subsidized nets to district health teams (for distribution to village health committees) and also to NGOs. Approximately 10% of all nets in Malawi are sold through these groups.

### ***Effect on other ITN programmes***

Generally, community-based programmes are set up in remote areas precisely because other sources of nets are not available. It is therefore unlikely they will have a negative effect on a commercial market for nets or on other ITN activities. Conversely, community-based programmes may be endangered by massive free net campaigns (e.g. combined with measles prevention campaigns) when distribution overlaps with their catchment areas.

### ***Effect on the health system***

Many community-based ITN programmes are designed to complement the local health system – and in essence to remove some of its burden. In Mozambique, the Zambezia provincial health directorate helps select communities, many of which will in the future be part of the ministry of health (MOH) anti-malarial distribution programme.

DHMTs are sometimes responsible for transporting nets from the district to peripheral levels and for handling sales revenues and commissions. This is true of some programmes in Malawi, where village health councils coordinate local net sales. Smooth running of these transport and administrative functions may require significant attention.

### ***Fraud/leakage***

Accountability at the community level is the responsibility of the parent NGO (or in some cases the DHMT). These groups may or may not have experience in tracking and ensuring the efficiency of commodity deliveries and sales. Little has been reported about the extent or kinds of fraud these programmes may confront. If nets leak to non-target audiences at the community level, they are still likely to be hung in the homes of the very poor since these programmes operate in remote locations. However, as in any ITN programme, leakage should be monitored and processes adjusted to ensure that nets are used by intended beneficiaries.

### ***Promotion and behaviour change***

As in other net distribution programmes, the sheer logistics of managing the commodity and tracking the sales and commissions is complex, particularly in remote areas. Nevertheless, these same volunteers must also be relied upon to promote ITN use and convey effective messages about correct use and re-treatment. Meanwhile, hard-to-reach target groups are least likely to have been exposed to any generic net messages. Good,

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### Reflecting on the approach

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#### Advantages of the approach

Advantages of the approach include:

- rural penetration, reaches the hard-to-reach;
- addresses gap left by other distribution systems;
- builds on local structures, uses local volunteers;
- no burden on the routine health system (unless district health management teams (DHMTs) are involved);
- administrative organization (e.g. an NGO) has knowledge of the community, credibility;
- builds on established systems for identifying vulnerable groups;
- affordable to most;
- facilitates local (and interpersonal) demand creation for ITNs;
- complements other development agendas (local empowerment, income generation);
- politically sensitive.

#### Major challenges of the approach

The primary challenges of this approach are:

- difficult to scale up (usually limited to reach of NGOs, their training capacity, and local agendas);
  - labour intensive; extended training period meeting multiple agendas;
  - target of subsidy may vary according to local criteria for vulnerability (in that case, making coverage difficult to measure);
  - procurement and distribution of nets requires coordination of multiple partners (donor, organization to package and warehouse nets, NGO capable of transporting nets to remote areas).
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behaviour-oriented training for community volunteers is therefore vital.

ITN distribution must also include a plan for promotion of re-treatment and supply of insecticides. Since the target group is essentially “captured” by the community-based group (has no other access to nets), all aspects of the programme must be administered by the local group.<sup>21</sup>

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<sup>21</sup> Presentations on this approach did not provide information about promotional activities (for ITNs or re-treatment) or about household-level behaviours in the two programmes.



This combination of tasks places a heavy burden of responsibility on community volunteers, and presents training and supervision challenges to the groups administering such a programme.

### *Exit/transition strategies*

On a small or localized scale, this approach does not threaten expansion of commercial sales, nor does it create a burden on government systems. It does rely upon several other ongoing systems – including centralized net procurement and distribution and (often) NGO supervision/administration. Generally, it will phase out when these other structures are phased out, lose funding or shift priorities. Because this approach addresses the hard-to-reach, there will always be a need for some variation of it. Challenges lie in the coverage limitations and other “inefficiencies” (such as long lead-time) inherent in participatory approaches, as well as the difficulties faced by NGO activities in scaling up.

## **3.4 ITN vouchers provided via health services**

### *Description – (who, what, how)*

In this approach, selected target groups receive discount coupons or vouchers towards the purchase of nets available in the local commercial market. Programmes have distributed vouchers through various health services to pregnant women and caretakers of children under five. The idea is to make sure target beneficiaries can afford to buy the nets being sold commercially in their own communities. The subsidy thus encourages both increased ITN use and the growth of a competitive supply.

Several approaches have emerged to deal with different markets. Local factors include:

- the number of commercial brands sold in the area (and supported by the voucher);

- the reliability of commercial distribution in remote areas and (if there are problems) how the programme addresses this;
- whether a socially marketed brand has been promoted in the area and, if so, the government's policy about whether to support that brand with the voucher or not.

All voucher programmes require efficient *redemption and reimbursement systems* so that retailers and distributors are compensated quickly for discounted purchases. They also require *vigilant tracking systems* to prevent leakage and fraudulent use of the vouchers. Those involved in the programme – health workers, distributors, retailers – require training in these new procedures.

Depending on the state of the local market, voucher programmes may also require *priming of distribution systems* to ensure that supply in hard-to-reach communities can satisfy demand (especially in the initial phases).

### ***Context – the essentials***

This approach depends upon a well developed commercial ITN market and on good collaboration and ready acceptance of mutual roles by the public and private sectors. A strong system of net distributors, who in turn communicate well with their retailers, is essential. Equally necessary is a reliable supply of vouchers to the target audience and a streamlined reimbursement process for the retailers. Solid but simple administrative systems are necessary to build trust among partners.

So far, voucher programmes have piggybacked with the health system to reach mothers and children (at ANC and child health clinics and through measles prevention campaigns). Vouchers may be much simpler to distribute than nets, so many other channels could also be used. Large employers and NGOs, for example, might give vouchers to their more vulnerable constituents, and might even contribute to the subsidy. The voucher can also be a promotional vehicle for the funder.

## Pilot programme

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### Zambia

The Zambian National Malaria Control Centre collaborated with USAID's NetMark Project to carry out a pilot voucher programme in 24 ANCs in Kabwe and Lusaka districts. The pilot tested and refined both clinic and commercial aspects of the programme over a six-month period, beginning in October 2002.

**Building on private sector strengths.** One of the programme's goals was to put in place administrative systems that would support (rather than replace) the regular functions of commercial net distributors and retailers. Two competing commercial partners agreed to procure, stock and market ITNs in multiple outlets near the clinics. Once a month, the distributors visited retail outlets to collect vouchers and reimburse retailers. Their own sales agents certified that procedures were followed correctly. The distributors submitted vouchers and records to NetMark, who reimbursed them within 1–2 weeks. The commercial partners were satisfied with the increased demand for their products and did not require commissions. In fact, competition for the vouchers drove prices of two products down within a few weeks.

**Multiple products.** The programme aimed to take advantage of multiple products on the market, allow women a choice and encourage competition among brands. The programme therefore developed a single "NetMark" sticker for participating distributors to affix to ITNs eligible for the discount. The sticker served as both a seal of quality and a tracking device.

Anticipating gaps. The programme found that, at first, supply was a problem. "Cash vans" were hired to encourage additional retailers to purchase nets in preparation for the increased demand. After this initial supply, retailers were to collect their nets from participating distributors.

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### Examples – Uganda, United Republic of Tanzania, Zambia (see boxes)

Participants at Lusaka provided four examples. Two were pilots and two are planned national programmes. All give vouchers to pregnant women and caretakers of young children at regular clinic visits. The four unique designs reflect different market contexts, as well as different ways of dealing with local ITN products and supply issues.

- **Zambia pilot** (*catchment areas of 24 clinics in two different districts*): Offered a discount voucher for several competing ITN products distributed through

normal commercial distribution channels. Project cash vans provided some one-time “seeding” of nets to encourage new retailers.

- **United Republic of Tanzania pilot – KINET Project** (*catchment areas of 80 clinics in two districts, total population about 400 000*): Offered a discount voucher for an (already subsidized) social marketing brand. Relied on distribution systems and designated retailers established, originally with public support, for that brand.
- **United Republic of Tanzania National Voucher Programme** (*planned – total national population 33.5 million; about 1.4 million pregnancies per year and 5 million < 5s*): Vouchers will be good for three competing local brands. A central logistics unit will ensure supply by coordinating with regional distribution agents and designated district warehouses (having no brand loyalties).

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### Pilot programme

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#### United Republic of Tanzania (KINET Project)

From 1997 to 2000, the KINET Project distributed ITN vouchers to pregnant women and mothers attending 80 clinics in Kilombero and Ulanga districts. The Swiss Agency for Development Cooperation, the Government of the United Republic of Tanzania and the Ifakara Health Research and Development Centre in the country collaborated in the effort.

**Transitioning from a social marketing programme.** The voucher programme used as its foundation an existing, sub-sidized distribution system for a socially marketed ITN. The KINET Project had originally developed the Zuia Mbu bundled product and supported its distribution through a mix of public and private sales outlets. Under the voucher pilot programme, wholesalers purchased nets from the project, with special stickers already affixed (indicating eligibility for the voucher and providing a means for tracking).

**Commissions as an incentive.** Wholesalers and retailers involved in the programme received commissions (or credits on the purchase of additional nets) according to the number of vouchers redeemed. They also received a small handling fee for each voucher. Wholesalers were responsible for gathering vouchers and re-cords from retailers and for managing their reimbursement – as well as for conveying the vouchers and records to the projects. Sales agents employed by the project visited outlets to spot-check inventory records.

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- **Uganda National Voucher Programme** (*planned – total national population 21.1 million; about 1.3 million pregnancies and 5.1 million < 5s*): Vouchers will be good for several competing (imported) brands that are distributed through established commercial systems having strong brand connections. A central management unit will stimulate and control inventory and track the movement of all products and vouchers.

The two pilots have been evaluated and lessons are shared below. Since no ITN voucher programmes have yet been carried out at scale, the important lessons are awaited. Proposed strategies for the national plans are also shared below.

### ***Coverage and equity***

Coverage rates under voucher programmes depend on the same basic factors as other ITN approaches: affordability, accessibility and demand for the product. Voucher programmes add an extra dimension to each of these elements.

**Cost.** In Zambia and the United Republic of Tanzania (KINET) pilots, price was a critical issue. Zambia based its subsidy on willingness-to-pay data collected from the target audience. About 75% of all coupons were redeemed. Of those women who did not redeem coupons, about one-third said they had no money; another third said they were waiting for their husbands.

In the United Republic of Tanzania, 97% of distributed vouchers were redeemed for nets.<sup>22</sup> However, health workers gave vouchers only to women who said they intended to use them. Programme managers assumed most of the others could not afford a net even with a voucher. In fact, a household survey showed that none of the poorest women in the area had redeemed a voucher.<sup>23</sup> Awareness and uptake of the voucher

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<sup>22</sup> Musi A et al. Targeted subsidy for malaria control with treated nets using a discount voucher system in Tanzania. *Health Policy and Planning*, 2003, 18(2):163–171.

<sup>23</sup> The National Plan raises the subsidy from TShs 500 to TShs 2500. The full price of an ITN was about TShs 3000, or around US\$ 4.20 (in 1999 dollars).

were low among all eligible women after two years of programme activity. It is therefore unclear the extent to which other factors may have contributed and how important a role cost played.<sup>24</sup>

As in social marketing schemes, voucher programmes may have to adjust the size of the subsidy after testing redemption rates and monitoring other barriers.

**Context.** “Willingness to pay” is a function of many interesting factors. In Zambia, interviewers talked to mothers who had received vouchers within the past 30 days. In another 30 days, some of the women who were “waiting for their husbands” might well have received the top-off money needed to redeem their vouchers. A health worker might also have encouraged a woman to negotiate with her husband, or to have kept the voucher for some weeks until she had saved the money for it. In the United Republic of Tanzania and Zambia, health workers instead initially screened out women who did not immediately express interest in buying a net (Zambia stopped such screening after monitoring).

Both programmes learned that young, unmarried women face special constraints. It is particularly hard for them to negotiate for money, and they are often not registered – which is a necessary bureaucratic measure in voucher programmes (so that the retailer can be reimbursed). Adjusting systems to specifically accommodate this high-risk group can increase coverage.

**Supply.** Accessible supply is the most complex coverage issue, presenting itself in a unique guise for every voucher system. Each of the four programmes discussed at Lusaka examined this issue intensely and devised ways to monitor and promote expansion of ITN supply to any area where a clinic would be distributing vouchers.

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<sup>24</sup> Musi 2003. After two years, 43% of qualifying women had heard of the scheme and 12% said they had received and used a voucher.

### ***Effect on other ITN programmes (and market maturity)***

The introduction of a voucher programme will have a profound effect on any commercial or public net programme in the vicinity. Positive effects of a voucher programme on the commercial market can be swift. Even in the small Zambia pilot area, within two months of launch, retailers reported that 50% of their ITN sales were from vouchers. Competition for those sales also affected prices within those few weeks (the two more expensive brands both reduced prices to compete with the third).

Stabilizing increased supply can take more time. The market has to react at several levels. Initial discussions with manufacturers, distributors and selected retailers help identify possible bottlenecks, and both public and private sectors can offer ways of supporting expansion. All of the voucher programmes have had to be creative. Zambia's cash vans helped "prime the pump" until the flow of nets was consistent. Uganda's central management unit, designed to track inventory throughout the system, is a more extreme approach. The United Republic of Tanzania's proposed regional teams and district sales facilities represent efforts to coordinate with commercial distribution systems and encourage transition towards a purely private approach.

Conversely, voucher programmes that restrict their discounts to only a few brands or a few outlets will negatively affect those that are excluded. Zambia found that even a single health worker can anger (or disadvantage) local traders by directing mothers to a limited selection of shops. Preparing lists of stores for providers to share with clients gives them helpful information and also prevents favouritism (or bribery).

Clearly, a voucher programme that promotes only one product will crowd out the others. Reliance on designated retailers and distributors will likewise undermine competition and restrict market growth, unless the process of welcoming new partners is an open and energetic one.

### ***Effects on the health system***

For the health system, vouchers replace transporting nets with distributing slips of paper. No money changes hands. Record keeping is still important (in Zambia, health workers said this took from 2 to 5 minutes per client; in the United Republic of Tanzania it took from 5 to 8 minutes). The advantages of distributing a popular product remain. Mothers may be attracted to the health centre by the prospect of vouchers, and health workers have focal points for their messages about malaria.

Incentives should not be an issue with vouchers. Whereas health workers who distribute actual nets require commissions, the Zambia and KINET pilots found that only a few health workers asked about incentives and were willing to participate without them.

### ***Fraud/leakage***

**Preventing fraud.** Voucher programmes may invite opportunities for fraud. In an average community, a voucher may represent the equivalent of a day's wages. As a form of currency, a voucher is much easier to *transport* than a net. It is also easier to *exchange* for something other than a net. It may appear easy to *transfer* from an intended owner to an unintended one.

Each of the four programmes devised five levels of voucher security. The basic elements included:

- **The net.** A sticker is affixed to each programme net (by the distributor or at a central warehouse). The sticker must be placed on the voucher as proof of purchase when it is exchanged for an ITN.
- **The voucher.** It must be hard to counterfeit (printed with a hologram, a foil thread). The voucher must be traceable back to the clinic through a numbering system.



- **The clinic process.** Every recipient's health card is stamped. A clinic register is marked with the voucher number. The voucher is marked with the recipient's name and other details. Similar information is recorded on the voucher stub (or voucher record book).
- **The redemption process.** The retailer confirms the voucher belongs to the purchaser and adds his or her identifying information on the back; the ITN sticker is then affixed to the voucher.
- **The reimbursement process.** The distributor checks vouchers, compares inventories of unsold "sticker nets" against those supplied and those redeemed. Central management verifies distributor records, and reimbursement is completed.

In Uganda, the entire process will be tracked through bar codes on the vouchers and the nets, so that any irregularities can be traced to individual retailers and designated net recipients.

The programme has to be ready for ingenious consumers. In Zambia, one shop was removed from the programme when it was pressured to give nets to military men who claimed their wives were afraid to venture out. One clinic set up its own shop to sell nets. Another sought advice when a religious figure appeared and asked for quantities of vouchers to give to women in prison.

**Preventing leakage.** Leakage may occur high in the system (vouchers that never become nets) or lower down (discounted nets that are used by unintended groups). As in other approaches, this latter kind of leakage is less damaging when ITN coverage is still low. The nets are likely to end up with other vulnerable people. However, planners do not usually consider voucher programmes until the market is strong and net use is growing.

For this reason, voucher programmes should review household survey data carefully and track whose beds the discounted nets are actually hanging over. As in other programmes, a voucher

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## Two proposed national programmes

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### United Republic of Tanzania

In January 2004, a voucher scheme was launched in antenatal and child health clinics throughout the country with funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). Vouchers can be redeemed for any of the three brands of ITNs produced by Tanzanian companies (as well as for free re-treatment kits) – thus also providing a substantial boost to the national economy.

**Maximum support, minimum distortion.** The programme aims to stimulate the growth of the commercial sector while guaranteeing availability of ITNs and treatment kits wherever vouchers are promoted. To ensure supply, the programme has designed several inventory management or distribution support systems:

- Fixed sales points at the district level will maintain ITN inventory and collect vouchers.
- Primary agents (entrepreneurs) in every region will supply the district and mobile units with ITNs, collect vouchers and maintain records.
- Logistics contractor (competitively bid) will manage staff, vehicles, voucher control and reimbursement systems, and train retail partners.
- Regional teams (managed by the logistics contractor) ensure retail outlets for ITNs exist throughout the country.

The programme strives for a delicate balance of time-limited support, liaison with the commercial sector to ensure availability of nets, and efforts to avoid diluting free market forces.

### Uganda

Uganda is also preparing to launch a national voucher system with support from GFATM, following experiences in two pilot districts. Beneficiaries will include pregnant women and children under five reached through the health system and other outlets. The programme will rely on independent distributors (with their own retail networks) but a centralized government warehouse and management system.

**Establishing an integrated system.** The Ministry of Health will establish a Central Management Unit to oversee the initial storage bar-coding and supply of internationally purchased ITNs to distributors. It will also procure and send vouchers to health facilities; track vouchers as well as nets through a state-of-the-art management information system and inventory system; and reimburse distributors.

**Motivating distributors.** Distributors will be responsible for managing relations with their long-established retailers and for reimbursing them for collecting vouchers. The government will give bonus payments to distributors who serve hard-to-reach areas, and will give advertising grants according to the number of nets sold.

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scheme should never go to scale without field-testing its systems for gaps and learning how people will actually respond.

### *Promotion and behaviour change*

In this approach, knowledge and behaviours of the target audience, the health provider, the retailer and the distributor are all important.

An effective voucher programme conducts training for health providers in both the mechanics of the voucher and its use as an educational tool. The programme must decide how retailers will learn all the details of the system. (Through their distributors? Through visits by sales agents?) Distributors and retailers must be motivated to keep an adequate supply of nets flowing to the target areas. The Zambia pilot printed store decals and point of purchase materials to help the public identify participating outlets and increase sales.

As in net distribution programmes, supervisory and spot visits to both clinics and outlets help identify problems.

The most vulnerable groups will always have most difficulty paying the residual cost after the voucher subsidy. Even if news spreads quickly about the voucher (as happened in Zambia), explicit messages to the community about who the voucher is for, how it works and why it is important are critical for influencing families that need it most. Two years after the KINET Project was launched, a household survey found that only 43% of women were aware of the scheme. Among those who were eligible and had not taken a voucher, 63% said they could not afford it. Without examining the behaviours of other groups involved, it cannot be known to what degree price, and to what degree communication strategies, might have made a difference.

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## Reflecting on the approach

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### Advantages of the approach

- promotes growth of the commercial market, increased competition and lowering of prices;
- high proportion of funds may go directly to the subsidy (rather than to transportation, storage and management processes);
- low burden on the health system;
- health system still benefits from the potential “draw” of the subsidy. (May attract earlier ANC attendance and improve immunization coverage);
- provides a focus for health education talks and an IEC (information, education, communication) “focal point” to send home for family discussion and negotiation.

Although to date vouchers have been distributed through the health system, they can also be distributed through any channel with access to a vulnerable group (employers, NGOs, etc.) The voucher system is also an efficient mechanism for coordinating funding from multiple donors and for stimulating private contributions.

### Major challenges of the approach

Since no voucher programme has been tested at scale, many of the challenges are still unknown. It is known that:

- coordination between public and private partners – including different levels of the commercial net market – must be open, creative and constant;
  - getting the subsidy amount correct is crucial and may take time;
  - cost may not be the only barrier to uptake, and barriers should be monitored;
  - voucher programmes work best in mature commercial markets, but few of these exist; programmes are likely to be launched before conditions are ideal;
  - supply requires vigilance; programmes may need to “prime the pump” in remote areas;
  - potential for fraud and leakage will vary in different contexts, requiring tailored tracking systems;
  - streamlined management approaches that work at scale still need to be launched and tested.
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### *Exit/transition strategies*

Voucher programmes face two major transition issues:

Restrictive elements (limited products, or limited distribution mechanisms) may seem necessary for management reasons – to ensure quality control of nets, to ensure adequate supply, to make the redemption process manageable. However, these same elements may discourage market growth. The programme should have a plan for phasing out these restrictions and opening up further to market forces as this becomes possible.

A well designed voucher programme is likely to draw sales from other subsidized net programmes in the area because it allows for a choice of products. These effects can be felt quickly. During the Zambia pilot, for example, nearby clinics selling subsidized nets through a CARE project observed a noticeable fall in demand. As with all approaches, when a voucher programme is designed, all the programmes in an area need to be re-examined so that they complement each other and transitions are mutually planned.

### *Variation on the approach*

#### ***Voucher for free insecticide distributed during specified contact with health system contact and redeemable in the private sector***

Distributing insecticide re-treatment kits is not as logistically challenging as distributing nets. Nevertheless, if kits are available in the private sector, providing them to women through a voucher scheme will lessen the burden on the health system. Kits do not have the same monetary value as nets (about one-tenth of the cost), so fraud and leakage are not major concerns, and record keeping does not have to be as complex as for net vouchers.

### 3.5 Other approaches

The approaches described at Lusaka represent a selection of country experiences and are not intended to be comprehensive. Other targeted approaches include emergency distribution programmes serving refugee populations; employer-based programmes (such as one managed by Konkola Copper Mines in Zambia) targeted at vulnerable worker populations; and various community-based programmes. Some innovative programmes focus on increasing supply in rural areas – a particularly challenging problem. For example, the Sustained Health Effort shops in East Africa provide local shopkeepers with credit for distributing public health products such as ITNs. Other micro-credit schemes linked to women’s empowerment also provide opportunities for combining income generation and public health goals.

Effective, large-scale approaches to net re-treatment are urgently needed as part of any targeted ITN programme. The United Republic of Tanzania national programme will provide vouchers for free re-treatment kits to caretakers who bring their children for immunizations. Schemes have also been proposed that supply either kits or vouchers during child health weeks. “Life-cycle” approaches aim to capture biologically vulnerable groups at multiple times with nets and treatment opportunities.





## 4. *Cross-cutting issues*

### 4.1 **Policies and programmes – beyond projects**

Most of this document has been about projects – how to target them, how to plan them, how to transition from them. However, Lusaka participants agreed that the most important task of a government and its partners is to think beyond projects.

*Policies* underlie what is possible for any targeted ITN programme. A government's first priority is to ensure that national policies regarding taxes and tariffs, streamlining of regulations on insecticides and quality control of nets are supportive of national malaria programme goals. The economics of preventing malaria justify providing citizens with these goods.

Taxation of imported goods can protect emerging local economies. However, simple compromises such as waiving the taxes on the percent of cloth or yarn that goes into making ITNs can make ITNs more affordable. Transparent processes, such as open and advertised bidding on large net procurements, can support the growth of local net manufacturers. Including appropriate insecticides on the essential medicines list will help to promote the difficult issue of re-treatment.

Most importantly, all RBM partners must be committed to working together on the challenge of providing nets to citizens over the long term. Piecemeal programmes fail not only because they cannot achieve coverage but because they often undermine each other and frequently undermine the local ITN market. They can also confuse target audiences – if messages are not well designed or are not properly tested, if neighbouring communities seem to be treated inequitably, or if nets are distributed without any plan or messages regarding re-treatment. Finally, services



offered one week and not the next can damage the credibility of the health system. The goal must be comprehensive programmes with explicit rationales for complementary activities.

Pilot efforts are essential to test strategies and advocate promising approaches. To serve as true pilots, however, they should be replicable under true conditions – or with as few changes as possible – at scale.

## **4.2 How long?**

Short-term coverage targets already set in Abuja by African Heads of State for 2005 have helped focus both governments and donors on mortality from malaria. For many countries, the urgency is not only to save lives but to demonstrate a capacity to run programmes that deliver. Malaria is now one of the two or three top priorities of major international funding mechanisms.

Much discussion at Lusaka focused on current donor interest in malaria and the question of how long this may last. Comparisons were made with the priority given by donors to childhood immunization. The lesson from immunization is that, despite donor attention to specific vaccines, DTP3 coverage has stagnated or even fallen throughout sub-Saharan Africa during the past decade. The underlying goal in Africa, as in the rest of the world, must be to strengthen systematic delivery of services. Donors are also responsible. Unless they intend to fund and deliver nets for all African citizens forever, campaigns and other short-term activities should be viewed – cautiously – as special opportunities within the context of long-term plans, rather than as replacements for them.

## **4.3 Nets in the home – beyond supply**

This document has also focused a great deal on supply. Nets are a commodity. Acquiring and distributing them is the first task. However, their use is a behavioural intervention. The complexities of these behaviours are often lost amid the task of transporting affordable nets from point A to point B.

Creating awareness and demand – and building a net culture – is also the responsibility of every project and every community confronting malaria. No stigma is attached to malaria, but complacency does exist. Mosquito bites, fever and lost days of work are commonplace. Every pregnant woman and every child has the right to sleep under an insecticide-treated net, and the urgency of this must be promoted at all levels.

Demand is linked to price. However, focusing on price can also distract from other constraints. It is extremely difficult to know what role cost plays in any failed transaction. Nevertheless, it is clear that target groups occupy the lowest status in the family and in society, and household decision-making is key. Qualitative research can help identify the benefits and motivators essential for behaviour change within the family. A moment of individual encouragement between women, or a carefully designed message to husbands and fathers, can make a difference. However, even seemingly simple messages that have not been pre-tested can lead to misunderstanding or sometimes harm.

It is assumed that most communities know that young children and pregnant women should be sleeping under a net distributed by a programme. A net sold is often considered a net used. The data often show otherwise. Once again, barriers vary and need to be understood.<sup>25</sup> Too often it is assumed that distributing a re-treatment kit, or selling one at a very low price, means the net will be treated. The data almost always show otherwise.

Although re-treatment tends to be considered a “downstream” issue, treatment is the *central issue* until LLINs are widely available and affordable. Untreated nets do not kill mosquitoes and their effect on the community is nonexistent. Insufficient attention has been given to both the supply and the behavioural issues surrounding insecticide treatment. ITNs have replaced dipping of curtains, bed sheets and so forth as a programme objective in some countries. However, for those without nets, treatment of other materials is a potent interim practice. Careful message design and effective

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<sup>25</sup> These are also constantly changing. In Ghana, some people hung nets but did not sleep under them because they had heard those merely sleeping near a net would be protected.

mobilization could allow all eligible beneficiaries to benefit from free distribution of treatment kits or subsidized community dipping – whether or not they possess a net.

#### 4.4 Monitoring and evaluation

Planning, assessment and adjustment of ITN programmes over time requires reliable data. Both *supply side* data (information about net distribution and accessibility) and *consumer data* (information about household ownership and use) are needed from national and district levels.

The primary measure of a national ITN programme is coverage of vulnerable groups. The RBM core indicators provide guidance on this (see box).<sup>26</sup> To understand coverage issues and interpret how programmes must respond, data must be disaggregated by SES level, urban and rural distribution and geographical area. This complete picture reveals the nature of actual need and should drive programme targeting.

The question of who is sleeping under an ITN, and whether the product has been treated – and *why* or *why not*, often requires qualitative information.

One of the greatest challenges of monitoring is that data gathered about one programme and its targeted beneficiaries (without any information about the larger picture) can be misleading. A single home may be a microcosm of multiple market effects. Supply measures must examine both public sector and commercial distribution in a given area. These continually affect each other. Household measures must examine both subsidized products and “all net” ownership and use in the family.

Furthermore, supply is not just a question of numbers of ITNs or treatment kits gathered through retail or clinic and wholesale audits. Household surveys must indicate the accessibility of that supply. How far is the target audience to the nearest ITN outlet?

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<sup>26</sup> The complete indicator matrix will be published by the RBM Working Group on Monitoring and Evaluation Research (MERG) in a consensus document. (Information contained overleaf is also preliminary, pending results of the MERG meeting in mid-November 2003.)

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## Indicators

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The RBM Working Group on Monitoring and Evaluation Research has developed a matrix of impact indicators and methods for collecting information on the full range of targeted subsidy issues emerging from the RBM Strategic framework. Basic areas for measurement, in addition to the three listed below, include market priming, the private sector, the enabling environment and emergencies.

### 1. Ownership and use

- % of households having at least one mosquito net
- % < 5s who slept under a net/ITN last night
- % pregnant women who slept under a net/ITN last night
- % women of reproductive age who slept under a net/ITN last night
- Number of nets per net-owning family
- % of nets distributed by public sector, private sector, NGOs

### 2. Re-treatment

- % of nets treated ever/more than once/in the past 6/12 months (in accordance with national guidelines)

### 3. Provision of targeted subsidies

- % of target using subsidized goods
- % of target citing “too expensive” as reason for non-ownership

#### a) subsidized goods

- % of eligible outlets receiving goods
- % of goods reaching outlets
- % receiving goods out of total entitled target group covered by a (subsidized) net
- % of subsidized goods reaching the target group
- % of subsidized goods received by non-target group (leakage)

#### b) vouchers and similar systems

- % of outlets offering/stocking vouchers
- % target group attending clinic [a]
- % of attendees given vouchers [b]
- % uptake of vouchers among target group (a function of [a] × [b])
- % vouchers redeemed for ITN product
- % vouchers redeemed for non-ITN product

#### c) impact of subsidies on the commercial market

- % outlets stocking ITN products
  - % outlets willing to sell ITN products for vouchers
-

Finally, well designed monitoring processes are needed. Supervisory visits, review of clinic and retail inventories and procedures, and observations in the home and elsewhere are more revealing than numbers.

## 4.5 Calculating costs

Governments, donors and the general public want cost-effective programmes. Determining the correct subsidy for an individual net is the most obvious task. No programme seems to get this correct the first time. Starting with real data about consumers is essential. Insight is needed into what consumers are already spending on antimalarials as well as the economic impact of malaria episodes on households. Consumers must be asked what they are willing to spend on a net. An initial compromise is then struck according to the level of funds actually available to reach the target audience. Monitoring must then take over.

Some believe that starting high – and thus capturing early users who may be better off but who are also apt to be trend setters – is a conservative and systematic approach. Prices can be reduced; it is very difficult to raise them. (This principle obviously holds for free net interventions as well. An offer that is “free” can also be politically harder to change.) As the scale of an operation increases, natural economies will allow prices to fall. Programmes must be prepared to reassess the level of subsidy according to numerous factors throughout implementation.

Families are interested in the cost of a net, while governments and donors are interested in the cost of the *programme per ITN delivered*. When reviewing cost effectiveness, this is typically the number cited. However, it is notoriously difficult to represent accurately. This is a task for health economists – who should be involved in the planning stages of a programme as well as its evaluation. Accounts should be set up in such a way that costs can be an integral part of routine programme monitoring.

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## **Monetary costs – just the start**

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The monetary costs of an ITN programme often include contributions from both governments and donors. Depending on the type of programme, these may include:

### **The costs of policies and partnerships**

- Stakeholder meetings to clarify/refine policies; to coordinate programme plans and launch.

### **Products and product management**

- Procurement process for the nets (floating and evaluating bids) and cost of the nets themselves.
- Procurement of insecticide treatment kits.
- Packaging and possibly bundling.
- Design and printing of vouchers.
- Transportation of nets (internationally, clearing customs, movement to the districts and to clinics or other consumer outlets).
- Storage/security of nets at pre-delivery locations.
- Design of inventory and tracking procedures; record-keeping materials.
- Management of cash/voucher recovery and audit procedures.
- “Pump priming” activities (e.g. support for commercial distribution).

### **Personnel, incentives, training and supervision**

- Design and delivery of training programmes/materials (logistics/administration and communication).
- Salaries and incentives for staff.
- Commissions on nets (to distributors, health providers, communities).

### **Demand creation/promotion**

- Design and delivery of strategies/materials.

### **Research and monitoring**

- Consumer; coverage and various market surveys.
- Operational research to test strategies/monitor constraints or unintended effects.

### **Administration and assistance**

- Other local direct and indirect costs and overheads.
  - International consultants/NGO assistance and associated programme running costs and overheads.
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The true costs of activities include the direct and indirect costs (and overheads) for all partners, as well as the opportunity costs to partners and beneficiaries. The direct monetary costs at any given point in the evolution of an activity are themselves complex (see box). In ITN programmes, the time and opportunity costs demanded by various partners may also be crucial to basic programme running. A programme that piggybacks on the health system makes demands that are difficult to calculate without actual monitoring of work routines and unintended effects. The contributions made by international consultants and NGOs – likely to be funded by a combination of donors – may be critical to the design, operation and sustainability of a particular intervention.

Programme costs vary over time. The design and launch of activities include many one-time costs. For an accurate analysis, these should be amortized over the period of time a programme runs. The per net cost of a programme can be expected to fall over time for this reason alone. Programme costs also vary according to the scale of activities. Although it will cost more simply to reach more beneficiaries, economies of scale should make the programme more and more cost-effective as it grows. At the same time, expansion may stretch available resources and lead to a streamlining of processes that may affect impact. The last-reached may also face the greatest constraints. Leakage may take on new patterns. The trade-off between these forces is difficult to predict.

Finally, the cost of a programme must be measured in terms of its effect on other net activities in the area. What is the overall impact on coverage and on the strength of the market?

Given the complexity of these issues and the current lack of accurate cost evidence from large-scale programmes, this document has avoided comparing the costs of different programme approaches. The various presentations at Lusaka often included figures for programme components over a given time period, for a given scale of operation. However, the cost elements considered were not consistent between programmes. Furthermore, the variation in scale and duration of these programmes would

make any comparison improper, regardless. Nevertheless, calculating the cost of lives saved – or potentially saved – by an ITN programme is the critical argument to be made to governments and funding agencies. Accurate data about costs and benefits will also demonstrate that countries cannot afford for even moderate numbers of citizens to be without an ITN.







## 5. Conclusion

The title of this paper indicates one of the primary goals of national malaria control programmes: strategies that make ITNs affordable and accessible *at scale*. However, understanding of how to implement ITN approaches is still young. A number of the activities described here were either pilot programmes or plans. These “better practices” provide insights about what has worked and what the challenges are – and how to plan better.

Two major lessons emerged from the Lusaka presentations. First, programme managers are still learning what works and must remain open to learning from each other. Every field experience provides invaluable information about the complexities of consumer behaviour, market processes, health systems and how to monitor them. This stage is not a competition among strategies: it is a mutual search for programme designs that ensure equity and that are sustainable.

Second, “what works” in a given country – *over time* – is likely to be a combination of strategies adapted to local realities rather than a single fixed approach. A successful programme will allow for transition to an increasingly cost-effective mix of activities as net ownership grows and the ITN market evolves. Monitoring of key indicators should drive this process of adjustment and innovation, which must be reflected in the balance of roles among public, private and donor players. Perhaps the most difficult challenge for programme managers may be combining the necessary vision with the necessary responsiveness - to meet the needs of both tomorrow’s child and today’s, although the strategies that serve each best may at first appear to be in tension.





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# *Annexes*

## **Annex A**

### Basic steps of designing a TS strategy

#### **Step I – Assess**

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Study target audiences and current programmes to reach them, the maturity of the market, government policies, potential delivery systems, the existence of a net “culture”, barriers and incentives to use of ITNs and their re-treatment, and available resources.

#### **Who is vulnerable? What is current coverage?**

Malaria ecology, degrees of immunity, and who is vulnerable during which months

Current ITN and re-treatment programmes

Current net ownership

Current re-treatment rates

Current ability/willingness to pay

#### **Nature of the market**

Volume of nets available in the market and their source(s)

Supply/availability of nets in different areas

Type of products available (bundled with insecticide re-treatment kits? Long-lasting insecticidal net?)

Prices

#### **Policies**

Taxes and tariffs on textile imports

Regulations on insecticides (and whether classified as an “essential medicine”)

Other policies on target groups, costs, etc.

**State of existing and potential delivery systems**

Extent/reach of retail outlets

Health systems – ANC, EPI, other (use by vulnerable audience group, use by SES groups, capacity to absorb additional burden, and longevity)

Community systems (NGOs and CSOs, women's groups)

**Use and state of “net culture”**

Barriers/incentives for appropriate use of ITNs (by women and children)

Tradition of net use and degree of “norm”

Barriers to re-treatment

**Primary barriers to net/insecticide acquisition**

Cost? Seasonality of resources?

Supply/accessibility?

Awareness?

Desirability/demand?

**Resources**

Strengths of different partners, available funds

**Step 2 – Build commitment, coordinate**

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Begin the process of coordinating with partners. To ensure joint ownership, start the process early – in the design rather than the implementation phase – and cast the net wide. Advocate with government departments as necessary. Include the private sector. Make frequent contact to ensure that responsibilities are clear and that different agendas are being met.

Donors

Government (district management teams, relevant sectors of the health system), NGOs and CSOs

Commercial sector (producers, wholesalers, distributors)

Other private sector (e.g. contributors, large employers)

**Step 3 – Segment/select target audience (“Who”)**

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Describe exactly who will be reached; analyse how different segments might or might not overlap (biological and SES for example); and calculate both leakage (to those not in need) and percentage of those likely to be missed (nonparticipating high-risk). Include a rationale for this segmentation in the context of existing strategies, including those excluded from subsidies.

- Biological (pregnant women? children?)
- Overlap with appropriate SES segments?
- Urban/rural coverage?
- Geographical/emergency focus?
- Coverage of those excluded (safety net for nonparticipating high-risk segment?)
- Coverage of those excluded (affordable nonsubsidized market for those at lower risk?)

#### **Step 4 – Define product or service (“What”)**

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Describe the specific product and/or the distribution system that will be subsidized; the service that will be subsidized; and/or the supportive activities that will be subsidized.

##### **Product**

- Net (bundled or LLIN, specific brand or several brands, generic)?
- Insecticide re-treatment kit (IRK)?
- Price? Supply/distribution network?

##### **Service or support activity**

- Clinic- or community-based re-treatment?
- Training?
- Demand creation?

#### **Step 5 – Designate the delivery channel and administrative responsibilities (“How”)**

Indicate where and when the target audience will be reached (through what delivery system) and also which partners will be responsible.

##### **Where/when**

- Antenatal clinics?
- Immunization campaign sites?
- Specific retail outlets/kiosks?
- Community-based delivery? (e.g. women’s groups?)

##### **By whom**

- Responsibilities for administration, implementation

### Step 6 – Design the subsidy

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Specify the form and size of the subsidy and sources of funding, and describe any new (subsidy-related) processes that must be attached to ongoing systems to ensure delivery and tracking of the subsidy. Decisions are part of a joint process with partners.

**Address the primary barrier** (cost? supply? demand?) via support to a specific programme component

**Define the form** of the subsidy; indicate its size/scope/value

**Identify sources of funds** for each element (and length of time available)

**Design management systems** (supply logistics? redemption process?)

**Analyse pros/cons of incentives** (health providers? communities? commercial supply chain?)

**Project what kinds of fraud** may be likely and design tracking systems

**Cost out the programme** (start-up as well as projected costs over the mid and longer term to gauge sustainability)

### Step 7 – Train, test, create demand

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Prepare the system to deliver the subsidy and serve clients. Prepare clients to demand and use the subsidy. Adjust systems according to feedback received during this preparatory phase.

Design, test and distribute materials

Train key groups

Adjust the system according to feedback

### Step 8 – Launch and manage

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Ensure that all components are synchronized and that different parts of the system *understand* each other and their roles. Ensure smooth, coordinated implementation and motivated players.

Motivate partners, providers, clients

Anticipate possible problems/negative effects

Ensure feedback systems are in place and that crisis control will be quick

**Step 9 – Monitor and adjust**

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Track progress and highlight what is working and what needs to be changed. Indicators examine coverage (both subsidized and unsubsidized markets); source of products (subsidized and unsubsidized); effects on the delivery system and on the supply; cost; leakage and fraud.

Design tracking system for elements of subsidy (monitor efficiency and fraud)

Measure effects on subsidized as well as unsubsidized distribution

Measure positive and negative effects on delivery system (e.g. health system)

**Step 10 – Plan exit/transition strategy**

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Outline *when* this strategy will no longer be needed/appropriate (via key indicators or health system phase-out) and propose how the target group will be covered in the next phase.



## **Annex B**

### **Presentations and Participants**

*Mapping models for targeted ITN subsidies*  
Workshop, May 2003, Lusaka, Zambia

#### **Presenters/authors of the country presentations reported in this document**

*Improving ITN coverage through mass immunization campaigns – The Ghana Experience*

Dr Constance Marfo and  
Mrs Aba Baffoe-Wilmot\*

*UNICEF-supported ITN programmes (Kenya and Mozambique case studies)*

Dr Melanie Renshaw\*

*Targeting malaria risk groups with subsidized ITNs in Malawi*

Dr Charles Yuma and  
Dr Desmond Chavasse\*

*Case study: KINET Project, United Republic of Tanzania*

Dr Haji Mponda,\*  
Joanna Schellenberg, Adiel Mushi,  
Christian Lengeler

*ITN targeted subsidies in Zambia*

Dr John Chimumbwa\* and  
Dr Halima Abdullah Mwenesi

*Tanzanian ITN voucher scheme: experiences and lessons to date*

Dr Alex Mwita\* and the National Malaria Control Programme

*Uganda national voucher scheme for accessing subsidized ITNs to vulnerable groups*

Dr Peter Langi\*

#### **Lusaka workshop honoured guests and participants**

##### **Honoured guests, dignitaries**

Honourable Rosemary Chipampe,  
Member of Parliament  
Deputy Minister of Health,  
Chairperson of the Roll Back Malaria  
Ministerial Task Force, Zambia

Honourable Julien Chisupa  
Deputy Minister of Sport Youth and  
Child Development, Zambia

Honourable Gunston Chola  
Deputy Minister of Community  
Development, Zambia

Honourable Simon Miti  
Permanent Secretary, Ministry of  
Health, Zambia

Honourable M. Mulyokela  
Deputy Minister of Defence, Zambia

Honourable Felix Mutati,  
Member of Parliament  
Deputy Minister of Finance and  
National Development, Zambia

Dr Fatoumata Nafo-Traoré  
Executive Secretary, WHO/RBM  
Partnership, Switzerland

Honourable Neddy Nzowa  
Deputy Minister of Environment  
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Dr Rosemary Sunkutu  
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## **Annex C**

### **Cost information from selected Lusaka presentations**

*(Draft – figures have not been reviewed by presenters)*

**Important caveats:** Scale (both size of target audience and duration of project) have a major impact on programme running costs and total costs over time. No attempt has been made here to reflect on totals according to these important variables.

Costs are included as they were presented. No attempt has been made to present figures in consistent ways. Not all cost categories pertain to all types of programmes; some relevant gaps do exist for individual programmes. In some cases, the contributions of partners are indicated, but costs are not provided. Presentations included little information on re-treatment – either plans associated with the approach, or associated costs. *For all of these reasons, per net costs for these approaches are not comparable, and this chart should not be used for that purpose.*

The chart does not include data on the United Republic of Tanzania and Uganda national programmes (not yet launched) or on the Malawi and Mozambique community-based approaches (only amounts for consumer subsidies and health/community worker incentives were given). See notes below on the national programmes.

<b>COUNTRY PROGRAMME/SCALE</b>					
Country	Ghana	Kenya	Malawi	United Republic of Tanzania (KINET Project)	Zambia
<b>Type of programme</b>	free nets through measles prevention campaign	free nets through ANC (one-time distribution)	subsidized sale at ANC clinics	vouchers at ANC clinics	vouchers at ANC clinics
<b>(Scale) Programme size</b>	total population: 90 642; target pop: 28 973 total nets: 14 600	35 districts (17.2 million population, 864 900 pregnancies) 70 000 nets and K-O tabs	11.5 million total population; 374 461 nets sold in 2002 (10% are not clinic nets, but costs below also include these) <sup>a</sup>	total population: 400 000 <sup>b</sup> 7720 vouchers redeemed for nets (9/97–8/2000)	Pilot area of 40 ANCs (estimated target group of 22 000) 9283 vouchers redeemed for nets
<b>(Scale)<sup>b</sup> Duration</b>	One-time distribution (one-week period)	One-time distribution over approx. 12 weeks	pilot launched in 1998, national scale since 2000	July 1996–June 2000	15 October 2002–30 April 2003
<b>PUBLIC SECTOR AND DONOR COSTS/COMMENTS</b>					
<b>Costs of nets</b>					
Procurement cost of net from manufacturer	US\$ 49 400 (US\$ 3.42/net) (by UNICEF)	US\$ 2.31 (includes freight and customs, transport to districts and transport to ANC) (by UNICEF)	US\$ 1.83/net (by UNICEF)	N/A	N/A
Cost of insecticide (i.e. if bundled)	(included)	(included in above?)	kit: US\$ 0.54 packaging: US\$ 0.33	N/A	N/A
Cost/amount of subsidy (or value of voucher)				US\$ 1/net US\$ 1/insecticide	US\$ 2.08/net

Printing of vouchers/ checkbooks, records	N/A	N/A	N/A		design/ production of coupon: US\$ 814 stickers: US\$ 1600
<b>Transport</b>		(included)	equipment: US\$ 44 000	voucher distribution costs included in total	(minimal)
International transport	by UNICEF from Viet Nam	by UNICEF from UR Tanzania	by UNICEF		
Transport to districts	US\$ 1745	Provided by DELIVER Project	(included in running costs)		
Transport to distribution points	Some volunteering by HWs for final transport to campaign	Some volunteering by HWs for final transport to ANC	(included in running costs)		
<b>Warehousing/ storage/ security</b>	?	?	included in running costs except original building.	N/A	N/A
<b>Inventory control</b>				"start-up costs" included in total	
Design of accounting system					
Management of cash/voucher recovery			(included?)		
Audits			?		
<b>Incentives/ salaries</b>					
To health workers/com munities			US\$ 75 800 salaries (includes revenue to health workers from nets? or; revenues below includes a deduction for this?)	TShs 500/net	

To wholesalers, retailers				TShs 550-retailers TShs 250-wholesalers	
<b>Time, opportunity costs</b>	RC volunteers visit homes and distribute nets at campaign	Health worker time to distribute. HW time to dip nets.	HW time to sell nets, keep records during regular clinic times	HW time, approx. 5–8 min. per net	HW time, approx. 5 min. per net
<b>Research/monitoring</b>		two facility surveys, costing surveys, exit interviews, follow-up surveys (costs not mentioned)		costing survey (cost not mentioned)	cost study, various monitoring studies (clinics, retail outlets, mothers, distributors); local project time/travel: US\$ 4335; project time/travel: US\$ 45 000.
Training	US\$ 2355	only instructions by letter from districts	US\$ 12 000	(claimed included in total below)	
Promotion	US\$ 450	(none)	US\$ 19 000	(included in total )	signs for clinics: US\$ 240
<b>Known leakage</b> (no attempt to calculate costs here)	(estimated amount and costs subtracted from total below)	4% unaccounted for; 16% to non-target groups; below cost accounts for leakage	(minimal, some possible to neighboring countries)	7% of vouchers distributed not used for nets	some to military officers and to one priest
<b>Project overheads</b>			US\$ 31 000 (local or total?)	(included or not?)	
<b>Other</b>	Unknown: volunteers go to houses to promote	Large % of ANCs do initial dipping before distributing	ODCs: US\$ 57 700 travel: US\$ 105 500		



MINUS REVENUES RECEIVED FROM CLIENT SALES	N/A	N/A	US\$ 582 536	N/A	N/A
TOTAL PER NET COST CITED	US\$ 3.74 (per net distributed)	US\$ 5.26 (per net distributed)	US\$ 2.07 <sup>a</sup>	US\$ 3.00	(Not claimed)

<sup>a</sup> Calculations for Malawi include the cross-subsidy with the commercial net (which represents about 10% of sales and 40% of revenue). This makes it difficult to extract programme running and total costs for the subsidized net.

<sup>b</sup> Target audience not available (and difficult to determine because eligibility criteria changed during intervention).

<sup>c</sup> TShs 500 + approx. US\$ 1 in 1997, US\$ 0.58 in 1999. The subsidy reduced the cost of an ITN by about 20%.

#### NOTE FROM THE UNITED REPUBLIC OF TANZANIA NATIONAL PLAN:

Overall cost of the NVS programme is US\$ 9 329 838 (US\$ 7.77 per ITN promoted), of which US\$ 3 758 328 (US\$ 3.13 per ITN promoted) is dedicated to the voucher subsidy for pregnant women and for free distribution of IRKs. A further US\$ 827 080 (US\$ 1.35 per ITN) is budgeted for overall management, US\$ 1 163 430 (US\$ 0.97 per ITN) for regional facilitation and US\$ 3 066 000 (US\$ 3.71 per ITN) for initial training and promotion activities. Remainder is for monitoring, evaluation and audit costs. *The bulk of these budgeted costs represent a one-time investment in a programme that supports the further development of the private sector ITN market in the United Republic of Tanzania.* Based on tentative calculations of the costs needed to sustain the programme, the cost per ITN promoted can be reduced to US\$ 4.78.

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