



NETMARK REGIONAL AFRICA PROGRAM BRIEFING BOOK

Insecticide Treated Materials
in

UGANDA

September 2000



ABBREVIATIONS

<i>A.gambiae</i>	<i>Anopheles gambiae</i>
<i>A.funestus</i>	<i>Anopheles funestus</i>
AFRO	Africa Regional Office (World Health Organization)
AMREF	African Medical Research Foundation
CCF	Christian Children's Fund
CMS	Commercial Marketing Strategies
c.i.f.	Customs, insurance and freight
CPAR	Canadian Physicians for Aid and Relief
DFID	Department for International Development
DHT	District Health Team
DHSP	District Health Service Project
DLY	Discounted Life Years
f.o.b.	Freight on board
GDP	Gross Domestic Product
GNP	Gross National Product
ICRC	International Committee of the Red Cross
IDP	Internally Displaced Person
IEC	Information, Education and Communication
ITNs	Insecticide Treated Nets (and materials)
JMS	Joint Medical Stores
KAP	Knowledge Attitudes and Practices
LRA	Lord's Resistance Army
MARA	Mapping Malaria Risk in Africa
MoH	Ministry of Health
MCU	Malaria Control Unit
NGO	Non-Governmental Organization
NMCP	National Malaria Control Programme
<i>P.falciparum</i>	<i>Plasmodium falciparum</i>
<i>P.malariae</i>	<i>Plasmodium malariae</i>
PSI	Population Services International
<i>P.ovale</i>	<i>Plasmodium ovale</i>
<i>P.vivax</i>	<i>Plasmodium vivax</i>
ODA	Overseas Development Assistance
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
Ush.	Ugandan Shillings
V-F	Vestergaard-Frandsen
WHO	World Health Organization

SUMMARY

Uganda had a population of 20.9 million in 1998, with about 46% of the population below the poverty line. The GNP per capita is US\$320. The country is experiencing economic growth with the annual growth in GDP for the period 1999-2003 expected to be 7.0% while the growth in the GNP per capita expected at 2.7%.

Malaria is endemic throughout the country with 90% of the total population in highly endemic, primarily rural areas. It accounts for 25% of all outpatient attendances in Uganda and 15.4% discounted life years lost due to death from malaria and 12.9 days lost due to absenteeism. The overall cost of malaria in Uganda is estimated at nearly 1% of the Gross Domestic Product. The National Malaria Control Programme outlines insecticide treated nets (ITNs) as a key strategy for malaria control. The government has allocated funds to the districts to plan and encourage the use of ITNs.

There is no local manufacturer of nets, although there have been some discussions to start a small production unit. Net ownership varies according to rural or urban areas and also according to project sites. Household coverage is estimated at less than 5%, although some areas have higher coverage. Approximately 45% of the population spend money on other anti-mosquito measures such as coils and aerosols.

There are currently several Non Governmental Organizations (NGOs) who are presently engaged in or have planned the provision of ITNs in Uganda.

The estimated total sales for nets over five years are at least 3,739,663 and for insecticide treatment is 4,861,562 (not taking population growth into account).

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UGANDA

Map 1: General position of Uganda



1. BACKGROUND

1.1 Demographic Information ¹

Table 1: Demographic indicators

Population (<i>mid-1998-millions</i>)	20.9
Average annual growth rate (<i>1992-1998</i>)	3.0%
Age distribution (<i><15 years</i>)	51% ²
Urban population (<i>% of total population</i>)	14%
Life expectancy at birth (<i>years</i>)	42
Infant mortality (<i>per 1000 live births</i>)	99
Total Fertility rate	6.7
Illiteracy (<i>% of population age 15+</i>)	38.2

1.1.1 Socio-economic status

Household income or consumption by percentage share:

Lowest 10%: 3%
Highest 10%: 33.4% (1992)

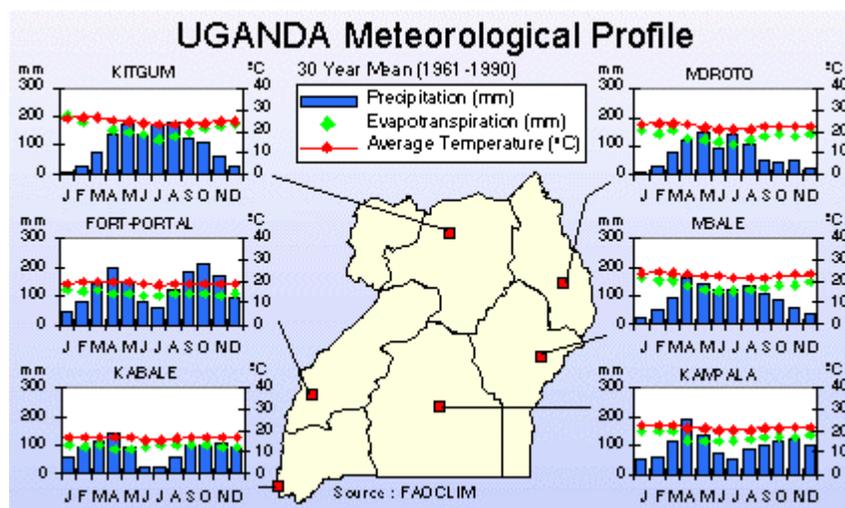
1.1.2 Ethnic groups and languages

The many ethnic groups in Uganda include Baganda 17%, Karamojong 12%, Basogo 8%, Iteso 8%, Langi 6%, Rwanda 6%, Bagisu 5%, Acholi 4%, Lugbara 4%, Bunyoro 3%, Batobo 3%, non-African 1%, other 23%. The official language is English; however, other languages used include Luganda, other Niger-Congo languages, Nilo-Saharan languages, Swahili and Arabic.

1.2 Geography and Climate

Uganda is a landlocked country bordered by Kenya to the east, Tanzania and Rwanda to the south, the Democratic Republic of Congo to the west and Sudan to the north. The capital city is Kampala. The other major towns are Jinja, Mbale and Masaka. There are 39 administrative districts. The climate of Uganda is tropical and generally rainy (Map 2), but semiarid in the Northeast on the border with Sudan. Temperatures range from 17°C to 26°C. Uganda is mostly plateau surrounded by a rim of mountains, particularly in the east (around Mbale) and southwest (around Kabale). The localized highlands of the Ruwenzori are found around Kasese. Vegetation consists of tropical rainforest in the south, with Savanna woodlands and semi-desert in the north. 18% of Uganda is open water and swamps. Malaria risk is likely to be elevated during the two rainy seasons, (March through May, and late September through November), and for 1 to 2 months after the rainy seasons. This seasonality will be most evident at higher altitudes, the highlands of Uganda being relatively arid in comparison with those of neighboring countries of Rwanda and Kenya.

Map 2: Meteorological profile of several sites in Uganda ³



1.3 Economy

Uganda has substantial natural resources including fertile soils, regular rainfall and sizeable mineral deposits of copper and cobalt. Agriculture is the most important sector of the economy employing over 80% of the workforce. Since 1986, major currency reforms have been taking place and the period 1990-98 was of sustained economic growth.

1.3.1 Basic economic indicators

Table 2: Basic economic indicators

GNP per capita	320
Poverty (%pop below poverty line)	46%
GDP (US \$ billions)	6.8
GDP real growth rate (1998)%	5.5
Average annual growth in GDP (1999-03projection)	7.0
Average annual growth in GNP per capita (1998)	2.7
Inflation (1998)%	2.6
Net ODA from all donors (US\$ millions-1996)	684
Exchange rate: Ugandan Shillings per US\$1 (1998)	1,368.4

1.3.2 Exports

Commodities: coffee, gold, fish and fish products, cotton, tea, corn.
Total value (1998): US\$476 million (*f.o.b.*, 1998)

1.3.3 Imports

Total value: US\$1.4 billion (*c.i.f.*-1998)

1.3.4 Budget

Revenue: US\$869 million
Expenditure: US\$985 million

1.3.5 Industries

Sugar, brewing, tobacco, cotton textiles, cement

1.4 Political stability⁴

Uganda has an ongoing complex emergency, which involves armed insurgencies by rebel groups, mostly in the north and west of the country, but more recently including the Southwest. The conflict includes about a quarter of all districts of Uganda. There were renewed attacks by the Lord's Resistance Army (LRA) in the north of the country at the beginning of 2000. Refugees from several neighboring countries are resident in Uganda. There is a history of refugee movement back and forth between northern Uganda and Sudan depending upon the security situation in each country. The numbers of Internally Displaced People (IDP) rise and fall constantly depending upon the level of rebel activity. There has been another mass influx of people into the IDP camps since the insurgencies at the beginning of 2000.

* 1 Ugandan Shilling (Ush) = 100 cents

1.5 Transportation

Railways: 1,241km (a programme to rehabilitate the railroad is underway)

Highway: 27,000km
Road infrastructure is the best in the region. Main roads are generally tarred and kept in reasonably good repair. The well-developed network of roads makes all of the main urban centres in all of the districts accessible.

Ports and Harbors: Entebbe, Jinja, Port Bell.

Airports: 27 (1998 est.)

2. MALARIA SITUATION

2.1 *Epidemiology and Entomology*

2.1.1 Burden

A 1996 study in Kampala, Luwero, Soroti and Rukungiri undertaken by the Malaria Control Unit, African Medical Research Foundation (AMREF) and Path Canada reported that malaria occurred anywhere from 1-12 times a year in adults and twice a year to twice a month in children ⁵. % OPD attendance due to malaria is 25%, admissions due to malaria 20% and 14% of hospital deaths are due to malaria ⁶. The burden of malaria is highest in children under 5 years old and pregnant women. Based on data on data from Kabarole District in Western Uganda, one third of all deaths among infants (1-12 months of age) and 22% among children (1-5years) in the highly endemic areas are caused by malaria. It is estimated that on average a person loses 12.9 days, of employment or school attendance, annually due to malaria. In Uganda, the overall cost of malaria may be as high as 1% of the gross domestic product (GDP). 82.5-97.5% is caused by *P. falciparum* with occasional mixed infections of *P. ovale*, *P. malariae* and *P. vivax*.

Total population at risk of stable endemic malaria ⁷: 17,769, 242 (1995).

2.1.2 Endemicity

Malaria is endemic and stable throughout the country except for areas of high altitude in Kabale and Rukungiri districts, where malaria is epidemic prone. A 1988 survey found malaria to be meso-endemic in all areas of the country except Arua district which was estimated to be hyperendemic ⁸. A further survey carried out by MOH, UNICEF and WHO in 1993 found a wider range of endemicities. Malaria was found to be hyperendemic in Apac, mesoendemic in Kampala and hypoendemic in Rukungiri. The majority of the country is climatically suitable for the transmission of stable malaria (Map 3), with the exception of areas of the Southwest and eastern borders. This should, however, be interpreted with caution as other factors besides those of the climate play a role on the ground, and endemicities may vary widely. 90% of the population of Uganda are in highly endemic primarily rural areas (below 1,600 meters), 5% in epidemic prone high-altitude in the Southwest and east (above 1,600 meters) and 5% in urban and peri-rural areas. Malaria transmission is perennial with peaks occurring one or two months after the peak of the rains. Documented epidemics occurred in Kabale and Rukungiri Districts in 1992 and 1994. In 1998, there was a malaria epidemic in all the southwestern districts.

There is a trend towards increasing malaria transmission in Uganda.

2.1.3 Seasonality

In the majority of Uganda, malaria transmission is endemic and perennial (7 to 12 months a year), see Map 4. The major exceptions to this are in the Northeast and the Southwest of the country. Transmission in these areas varies from endemic and seasonal (4 to 6 months a year) through epidemic or strongly seasonal (1 to 3 months a year) to areas where there is no transmission in the average year.

2.1.4 Vectors

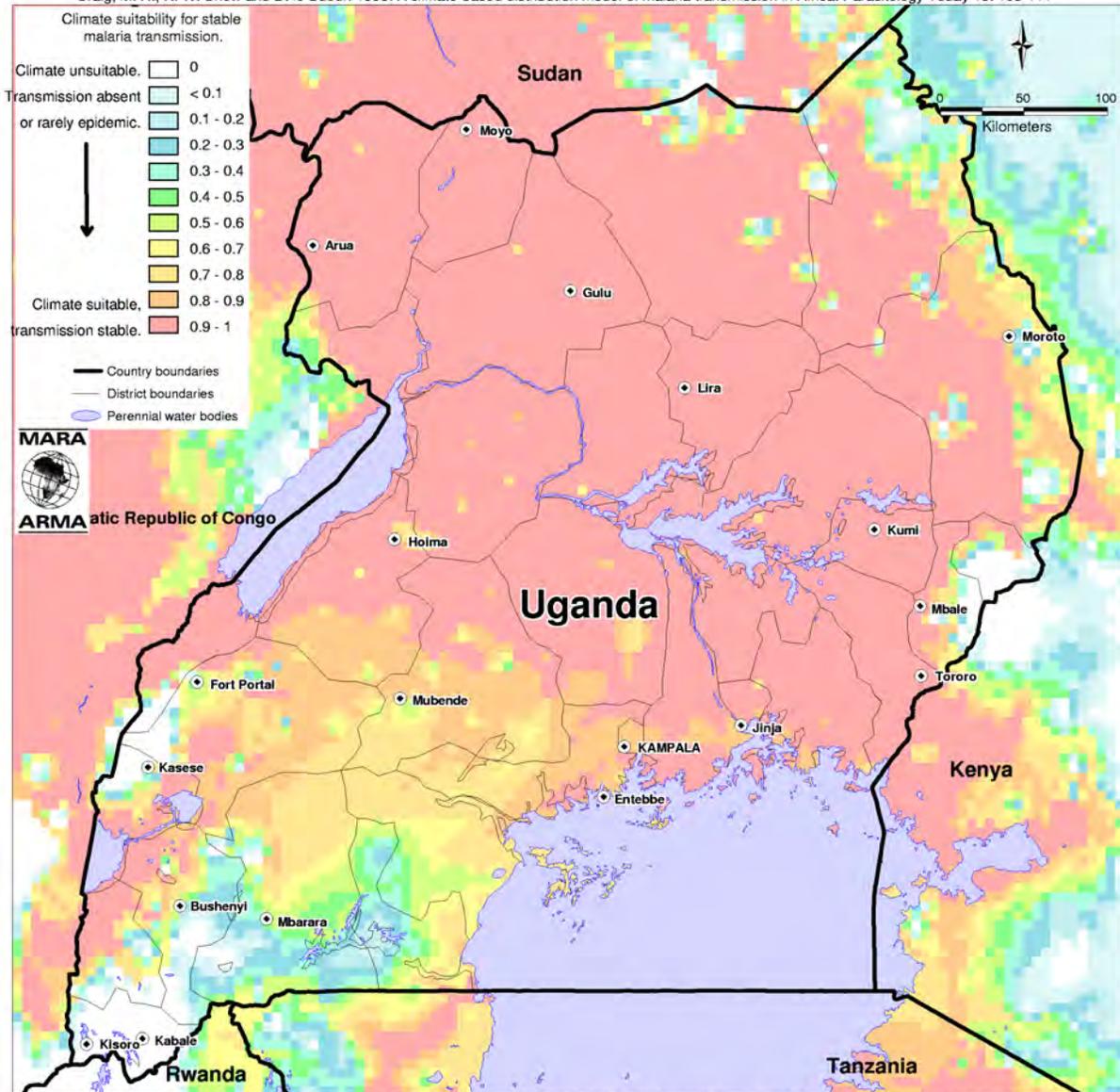
The major vectors are *A. gambiae* and *A. funestus*. The entomological inoculation rate is 66 infective bites per person per year in Bundibugyo, 97 in Kamwenge, 4 in Ruteete and less than 1 in Kicwamba⁹.

2.1.5 Local resistance to pyrethroid insecticides

There is no documented resistance to pyrethroid insecticides in Uganda¹⁰.

Distribution of Stable Malaria Transmission

Craig, M. H., R. W. Snow and D. le Sueur. 1999. A climate-based distribution model of malaria transmission in Africa. *Parasitology Today* 15: 105-111



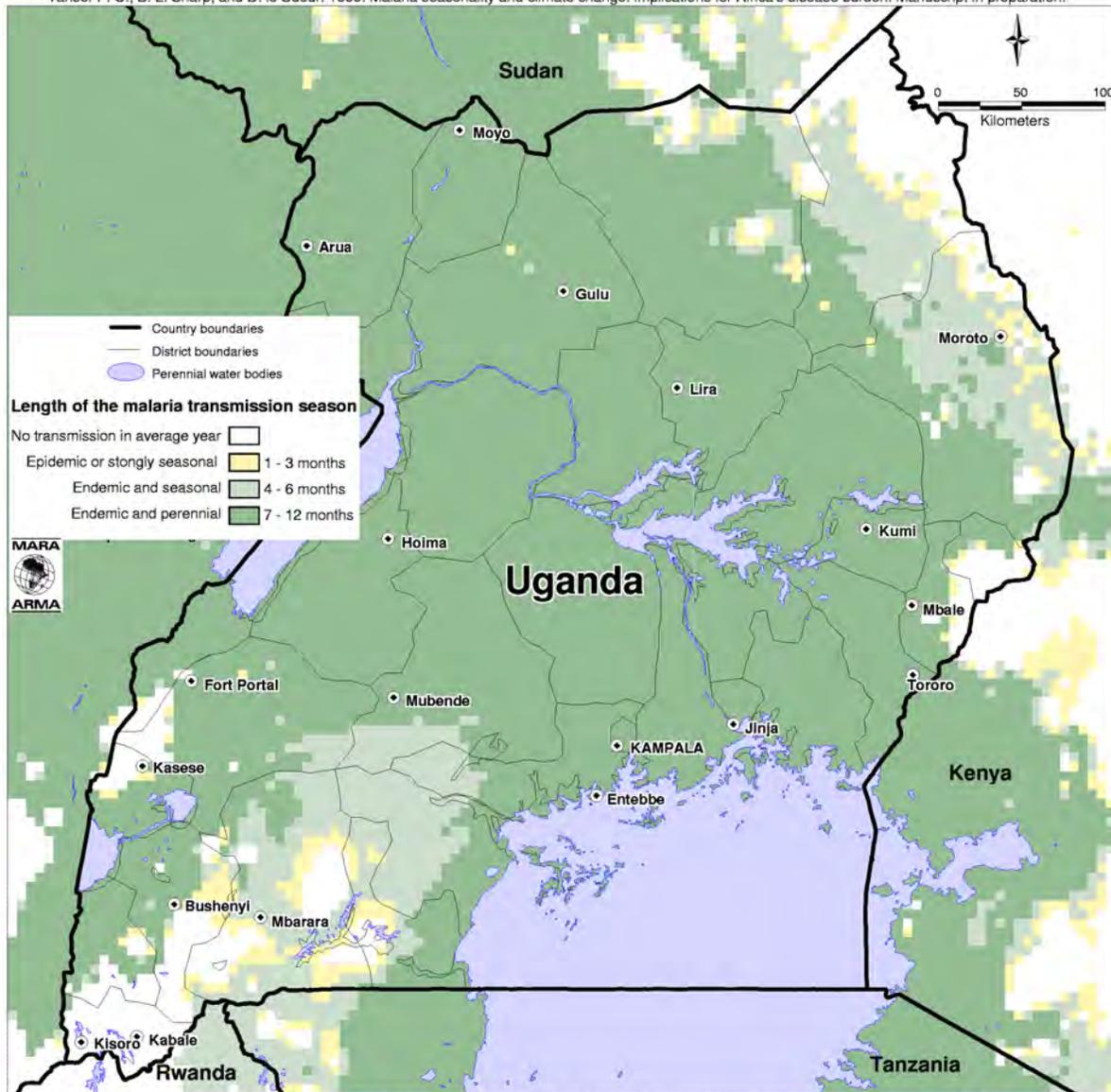
This map is a product of the MARA/ARMA collaboration. Printed September 1999 at the Medical Research Council, PO Box 17120, Congella, 4013, Durban, South Africa
 CORE FUNDERS of MARA/ARMA: International Development Research Centre, Canada (IDRC); The Wellcome Trust UK; South African Medical Research Council (MRC); Multilateral Initiative on Malaria (MIM) of the UNDP/World Bank/WHO Special Programme for Research & Training in Tropical Diseases (TDR), Swiss Tropical Institute.



Map 3: MARA map of climatic suitability for the transmission of stable malaria ¹¹

Length of the Malaria Transmission Season

Tanser F. C., B. L. Sharp, and D. le Sueur. 1999. Malaria seasonality and climate change: implications for Africa's disease burden. Manuscript in preparation.



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Map 4: Seasonality of Malaria in Uganda ¹¹

2.2 Malaria Control

2.2.1 Government control policies and strategies

The Malaria Control Unit (MCU) was established within the Communicable Disease Control Unit in May 1995 and headed by a programme manager. A multi-sectoral advisory committee including NGOs and other partners has been established to advise the MOH on malaria control. There is also a multi-sectoral task force that meets monthly to review the process. Malaria is seen as a priority and there is an emphasis on prevention. The five-year plan (1995-1999) cites ITNs for personal protection as important. For the financial year 1996/7 the government allocation for malaria control has been significantly increased. Districts have been allocated funds to plan and encourage more widespread use of ITNs. Research on ITNs through the institute of public health is being planned with the support of the MCU. GTZ is also undertaking operational research. There are also plans for research on ITNs in two districts and impregnated papyrus mats for sugar plantation workers. The MOH has developed the Intensified Malaria Initiative for increased government political commitment and funding after which donors will be requested to fill the gaps to be identified during the preparatory phase of the initiative ¹². The programme is in the process of developing and fielding basic ITN information pamphlets at the district level. Plans are being developed to introduce ITNs to hospitals and schools (World Bank recommendation). NMCP is in search of funding for a media campaign to promote ITNs.

As part of a decentralized system, the Ministry of Health has allocated certain districts to certain donors and NGOs. District Health Teams (DHT) generally collaborate with NGOs to integrate projects with the District Health Services Project (DHSP), funded by the WHO. The DHSP has three components to malaria control - case management, prevention, and vector control. Malaria Committees are set up in communities to train leaders in various aspects of malaria control.

Since 1997, malaria interventions have been included in the Uganda Essential Health Package. The decentralization of the health system means the districts bear the main responsibility for implementing malaria control activities. However, the central office of the National Malaria Control Program (NMCP), at the Ministry of Health, plays an important role in building the capacity of the District Health Teams and ensuring the success of the program ¹³.

The MOH ITN strategy cites a major role for the commercial sector, but it is not yet clear how this can be achieved. MCU staff is supportive of any efforts by donors to promote ITNs.

2.2.2 Major actors

Donors

The largest sources of funding for malaria control in Uganda are donors who provide 66% of total funds followed by local government. UNICEF is the second largest source of funds donating 16.7% of the total. The World Bank, UNICEF, WHO and the government are planning to work closely with other partners to further distribution of mosquito nets and to revitalize the NGO forum in support of the National Malaria Control Programme ¹⁴. UNICEF and WHO country staff are supportive of an approach that promotes the entry of the commercial sector into the ITN market and that those who can afford to pay a commercial price for ITNs do so while subsidized products are targeted at the poorest of the poor. UNICEF is planning to add a Malaria Prevention and Control Specialist to their staff in 2001.

Non-Governmental Organizations (NGOs)

In attempts to avoid duplication of services and competition for resources, the MOH has allocated certain districts to specific NGOs. Thus, the agenda of the particular NGO, together with the capacity of the District Health Services Project (DHSP), determines whether or not ITNs are introduced into a district. Most NGOs use communal dipping for net retreatment, since it is less expensive and also since, until recently, there have not been other options. Also, most ITN projects are implemented on a revolving fund basis, with varying degrees of success. NGOs involved in ITN programs in Uganda include Population Services International (PSI), Action Aid, African Medical Research Foundation (AMREF), Canadian Physicians for Aid and Relief (CPAR), Christian Children's Fund (CCF), International Committee of the Red Cross (ICRC), Joint Medical Stores (JMS), Plan International, World Vision, and Commercial Marketing Services (CMS).

2.2.3 Level of finances devoted to malaria prevention and control

On average, the total health expenditure on malaria in 1997/8 in 13 districts in Uganda was 4.84% of the total district health expenditure ¹⁵.

2.2.4 Past and current programs

Governmental

In Tororo District, the Community Vector Control Organization has launched various programs including efforts to provide ITNs locally. It is a membership-based organization requiring a fee of Ush. 1,000 (US\$0.91). At one point it was selling half bednets which cover only the upper part of the body for Ush. 6,000 and 6,500 (US\$5.45-5.91) for members and non-members only. One of its goals is to join with the government and international organizations in their efforts at vector control ¹⁶.

Action Aid

Action Aid has a net project in Mbenga where nets are sold for Ush 10,000.

AMREF

ITNs are integrated with Child Survival Program/Health Services Delivery. Projects are in the Luwero and Soroti districts. Over 10,000 nets have been distributed in the last five years. Nets are subsidized, bought at US\$7 and sold at Ush 8,000-9,000 (US\$5.55-6.25). Retreatment is at cost recovery, USh.200 (US\$0.14) are charged per dip. Nets are imported from Siamdutch, Thailand. Distribution is through Community Health Workers (volunteers) who treat the nets before selling them. Insecticide (AgrEvo), in both tablet and liquid form, is also obtained from Siam Dutch. AMREF is exploring the option of having communities make nets.

Canadian Physicians for Aid and Relief (CPAR)

CPAR manages projects in Apac and Lira districts. They began with a pilot project of 200 nets and now have plans for larger procurement. ITNs are subsidized. Nets are bought at USh10,000-12,000 (US\$6.94 - 8.33) and sold at Ush 8,000-10,000 (US\$5.5 - 6.94). Retreatment is USh100 (\$0.07) per dip. Nets are from ROMEX Ltd. and are pre-impregnated. Insecticide will be acquired locally. ITNs are distributed through Mother and Child Health Programs.

Christian Children's Fund (CCF)

CCF distributed 100 nets in 1999 within Masaka, Mbale, and Lira districts, as part of an MOH project. There is funding to implement a pilot project in January 2000, of 3,000 nets in six projects. A proposal has been submitted to Australian Aid for a larger ITN project. ITNs are heavily subsidized. Nets are bought at Ush 12,000 (US\$8.33) and sold at about Ush 2000 (US\$1.38). There are plans to charge a retreatment fee of Ush 1,000 (US\$0.70) per net. Nets are from ROMEX Ltd. and are pre-treated. ITNs would be distributed to children under five in enrolled families and then to others in the communities.

International Committee of the Red Cross (ICRC)

Nets were explored as an income generation project but this was abandoned as it was found to be non-viable. Presently there are plans for a pilot project in one district (Kasese) for 7,000 nets. ITNs are to be distributed free; treatment is to be done by the community, with a possible charge in future. Procurement is centralized from Kenya but they are exploring nets from Joint Medical Stores and ROMEX Ltd.

Joint Medical Stores (JMS)

JMS was founded by, and now supplies, non-profit, church organizations (medical and other supplies). They began carrying Vestergaard-Frandsen nets in 1999. Medium nets are bought at Ush 6,100 (US\$4.24) and sold at Ush 8,300 (US\$5.76). Large nets are bought at Ush 7,900 (US\$5.49) and sold at Ush 10,000 (US\$6.94). (There is a 5% profit for customers other than preferred Church/NGO organizations). JMS has started carrying insecticide from Zeneca (Icon® and Iconet®) and more recently, AgrEvo (K-O Tabs® and kits). JMS has a wide distribution network through its diverse customer group.

Plan International

Plan has two projects of community-based malaria control in Tororo, Luwero, and Kampala districts. 2,000 nets have been distributed so far, with plans to distribute 5,000 more this year. ITNs are distributed free, with plans to subsidize 60 - 90% next year. Nets are from Vestergaard. Insecticide is from Zeneca but they buy pre-treated nets from Vestergaard. In Tororo, Plan is collaborating with COVECO, an organization that buys netting and makes the nets. In Kampala, Plan has contracted Mulago Community Based Outreach Program, through Mulago Hospital, to buy and treat nets. In Luwero, the National Malaria Control Program (NMCP) treats the nets.

Population Services International (PSI) / Commercial Marketing Strategies (CMS)

USAID Kampala has been planning to start ITN activities by adopting a plan proposed by PSI to start ITN distribution through the CMS Project. PSI/CMS proposes to sell nets under a new brand name in 6 districts (total population 3.6 million) with the support of CMS. CMS will provide the sales force and distribute the nets, they have a well-established distribution sales force from their present business in reproductive health products. UNICEF are planning to donate around 20,000 nets in 2000, GTZ plan to evaluate the pilot project, and Vestergaard-Frandsen will provide the Permanent. USAID hopes that PSI/CMS and NetMark can work together to develop a collaborative programme that will have the maximum impact upon malaria prevention with the most efficient use of USAID funds. PSI/CMS are developing an Information, Education and Communication (IEC) plan, they have two scenarios, a national IEC programme with the assumption that they will be working alone, and a scaled-back IEC programme that would work in concert with NetMark IEC activities. PSI/CMS have no plans to market ITN treatments and see this as a role that NetMark could fill, as there are many untreated nets in the country.

Vestergaard-Frandsen (V-F)

V-F have spent a great deal of time and money on the development of the Permanet, they have no plans to market an insecticide treatment product as well. They are presently working on a net treatment that will resist dust and lessen the need for washing. V-F's main goal is to supply governments and donors, rather than market directly to the consumer.

World Vision

World Vision is working in Kabale district. ITNs are only part of a long-term development plan. Nets are from a Chinese company in Kampala. 700 nets have been bought so far, with a proposal to order 7,000 more. Insecticide is from ROMEX (about 20L at USh78,000/L).

3. CONSUMER MARKET FOR ITNs

3.1 Policy context

3.1.1 Policy on taxation and tariffs

Tariffs and VAT have just been cancelled for mosquito nets. This should reduce the cost to the consumer by 30% to 50% (tariffs previously varied depending upon the country of origin of the goods). The MOH is eager to increase ITN activities to show that the tariff reduction is stimulating the market. No taxes apply to insecticides because they are classified under agricultural and public health products. Registration of insecticide is also not required.

The purchase of foreign exchange must be reported to the Bank of Uganda, although Uganda abolished all licensing and foreign exchange controls in 1994. Tax exemption is given to certain NGOs. Virtually all products are subject to automatic licensing.

3.2 Current market

Table 3: Anti mosquito measures and % households using them in three areas of Uganda ¹⁷

	Apac (%)	Kampala (%)	Rukungiri (%)
Bed Nets	24	9	0
Mosquito Repellents	28	34	2
Aerosol Insecticide	2	18	2
None	46	39	95

17.3% of households use mosquito coils, 31% use aerosols and 12.3% use agricultural insecticides. The proportion of households who have used any preventive measures varies between 5% and 55% in various surveys ¹³.

3.2.1 Insect control market

Table 4: Consumer insecticide control products in the Kampala market

Brand	Size	Price (Ush)	Source
Insect Sprays			
OFF!	6 oz.	5,900	USA
Raid (all purpose, cockroach and ant)		2,200	Kenya
IT (All insects)		3,800	Kenya
BOP	400ml	2,500	UK
	600ml	3,200	
Sanmex	300ml	2,400	Scotland
Baygon	120ml	2,900	SA
	250ml	3,500	SA
	400ml	4,500	Indonesia
Ridsect	150gms	2,800	Kenya
	300gms	4,900	Twiga Industries
	400ml	6,300	
Farco	200ml	2,800	UK F.A. Richard & Co.
Doom	300ml	3,400	Kenya
	900ml	5,200	
Motox	400ml	2,300	UK HVM International
Superfaust	380gms	5,900	Italy Pozzo D'adda
Kiwi	300ml	2,500	A.R.E.
Polyguard Kilit	400ml		UK Miswa Chem.
Target	200ml	2,900	SA Reckitt-Coleman
Tropikal	180gms	3,000	Kenya
Coils			
Doom	10 coils	600	Kenya
Ridsect	10 coils	600	Malaysia for Sara Lee/Kenya
Repellants			
Moskill Repellant Sticks		700	Moskill coil products
Mosbar Skin Repellant Soap	90 gms	1,300	Kenya
Odomos repellent cream	100gms		India
Autan	100ml	4,900	Bayer Germany

3.2.2 Mosquito Nets

There is no local manufacturer of nets; however, there has been some discussion of starting a small production unit. Some NGOs are considering using net production for income generation in communities. A survey in 1998 found that in 18 Uganda ITN projects, 33.3% of the netting

* \$1 = Ush1,500

was imported directly, 27.8% was bought from local traders, 16.7% was bought from local NGOs, 11.1% was bought from MOH, and 11.1% was sewn from imported material ¹³.

Table 5: Origin of imported nets, distributors and wholesale prices

Imported Nets-Origin	Distributors	Wholesale Prices *
<ul style="list-style-type: none"> • Vietnam • India • Vestergaard Frandsen (EA) • Sunflag Ltd. (Tanzania & Kenya) • A to Z Textiles Ltd. (Tanzania) • China (green, pink B-52 nets) • Dubai (collapsible baby cot nets) 	<ul style="list-style-type: none"> • Vestergaard Frandsen (maintains the largest stock of nets within the country and therefore is the main supplier of the NGO projects or others requiring bulk orders. They are not pre-packaged) • ROMEX Ltd. (origin-Vestergaard repackaged with ROMEX label) • Joint Medical Stores (origin-Vestergaard) • Local Shops ('Mmbunets', 'Safinets', 'B-52' nets, baby cot nets): Main suppliers of nets to the street hawkers. 	<ul style="list-style-type: none"> • Rectangular - medium - 130x180x150 - (\$4.85) • Rectangular - Double - 190x180x150 (\$5.25) • Conical/Rectangular - Single (USh. 8,000-12,000/\$12-17) • Double (USh. 12,000-30,000/\$17-43) • Infant (USh. 12,000/\$17)

Main Distribution Channels

NGOs, Community Based Organizations (CBOs), District Health Services Projects (DHSP), medical institutions, boarding schools, universities/colleges, hostels, hotels, military. Insecurity in the north limits access to the area so nets are mainly channeled through small, NGO projects. Traders supply most nets. Some are imported and some are smuggled from Kenya, Tanzania, China and Dubai ('Mmbunet', 'Safinet'). The National Malaria Control Programme attempted to sell nets in Kampala but at USh. 20,000 (US\$14.60) they were unaffordable. Although taxes were waived, the saving was not reflected in the price ¹⁸. There is a plan to use ITNs in sugar plantations. The main districts where nets are presently distributed (either directly supplied by main distributors or through NGOs) are Kampala, Soroti, Tororo, Luwero, Kasese, Katakwi, Kabale, Nakasongola, Lira, and Apac. Most nets are found in and around Kampala. Projects in other districts are small, usually distributing less than 1,000 nets. Nets are visible in Kampala, on the streets (hawkers) and particularly in the main market areas (Kampala Rd., Owino Market, Namirembe Rd., Nakawa, and Nakaseru). The general prices of nets from household and shop surveys ¹³ range from US\$4.59-18 ¹⁸.

Impregnated nets are presently only available through ROMEX Ltd.

3.2.3 Insecticide

No manufacturing is done in country. Importation is primarily from Kenya. Individual treatment packages are not widely available yet. The Ministry of Health has published a list of approved and available insecticides for ITN use, together with distributors in Kampala. However,

* Prices vary if payments are in US\$ or in Ush to compensate for inflation and currency fluctuations.

insecticide is difficult to find in Kampala. What is available is only found through agrochemical suppliers and outlets. Individual sachets are available through the Joint Medical Stores and possibly through Twiga Chemicals.

Table 6: Insecticides for net treatment in Uganda

Product	Alpha-cypermethrin	Lambda-cyhalothrin	Cyfluthrin	Deltamethrin	Permethrin
Manufacturer	Cyanamid Transnational Corporation	Zeneca Public Health	Bayer Ltd.	AgrEvo Environmental Health	AgrEvo Environmental Health
Distributor	Cyanamid (Kenya)	Twiga Chemical Industries	Bayer (Kenya)	Joint Medical Stores MEDS (Kenya) Coil Industries (agent)	Joint Medical Stores MEDS (Kenya) Coil Industries (agent)
Brand name	Fendona	ICON	Solfac	K-Othrine K-O Tab	Peripel
Form	Liquid - Suspension concentrate (SC)	Liquid – Emulsifiable Concentrate (EC) or SC	Liquid – Emulsion in Water (EW)	Liquid – SC Dispersible Tablet	
Size	250ml	500ml 1 liter	20ml 1 liter	1 liter 20 liter	
Packaging	Bottle	Bottle	Bottle	Bottle Drum	
Price		US\$74 US\$130 - 166			

*Distribution channels*¹⁸

Insecticide is available from distributors through their agrochemical distribution channels. Most of the insecticide available at district level is for residual spraying. The main distribution channels are all major farms, district agrochemical depots for local farmers, government, NGOs, District Health Services Projects (DHSP), and medical institutions, military. At the community level, the target market is children under five and pregnant women. No marketing research has been done. ROMEX Ltd. has developed a distribution plan but lacks financial resources to implement it. There has been a definite increase in demand in the market, both for nets and insecticide, in the last two years. This is primarily due to promotion by the MOH, individuals in the NGO community, and international interest.

3.3 Market Analysis

3.3.1 Projected market

3.3.2 Assumptions

- In every family the mother and father share a bed/mat and two children share one bed/mat.
- The warm market is those currently using sprays, coils or repellents, estimated at 45%.
- Families buying nets for the first time would be willing to buy only one net.
- Distribution of nets and insecticides would be nation-wide through private sector channels.
- There will be high intensity promotional efforts supported by public and private channels.
- 20% of families buying one net would buy a second net the following year.
- 30% of these nets would be retreated in every year (twice a year).
- Annual increases in net sales would be 30% in year 2, 25% in year 3 and 15% in year 4.
- Annual increases in insecticide sales assume 30% retreatment of existing and new nets and a growth in sales related to the number of nets.
- The *low growth* represents 15% of the market being reached in year one and all these would be sold with insecticide; *medium growth* represents 25% of the warm market being reached in year one and the *high growth* represents 35% of the warm market being reached in year one, all nets being sold with insecticide.

Illustrative sales over 5 years *

Number of households for targeting

Total Population (<i>millions</i>)	20.9
Estimated average family size	5
Warm market (% households)	45
Number of families using other repellents (warm market)	1,881,000

Table 7: Estimated sales of nets and retreatments over five years
(pending market research)

3.4 Trading issues

3.4.1 Promotional methods

The MOH has used posters, leaflets, radio spots, and newspaper advertisements to discuss and promote malaria control methods but this has not focussed specifically on ITNs. ROMEX used radio ads for about 6 months. Uganda has several very popular radio stations, in both English and local languages. Programming and advertising is particularly creative and informative. Billboards are highly effective in Kampala. Almost all main store buildings, banners and roundabouts are well painted with one or two specific product advertisements. There is no specific advertising for ITNs on the Ugandan market at present.

* Populations have not been projected.

4. CULTURAL AND BEHAVIOURAL ASPECTS OF ITN USE

4.1 Net ownership

Table 8: Household mosquito net coverage in several areas of Uganda ¹⁹

Area	Household Coverage (%)
Kampala (urban)	40
Kampala (Rubaga Hospital) ²⁰	11 (after IEC and selling nets, 41.3%)
Luwero (rural)	42
Soroti (rural)	50
Rukungiri (rural)	39

Most of the nets available are white although, light blue, dark blue, purple, dark green, hot pink is also available.

In the 1992 study in Apac, Kampala and Rukungiri, 61.5% of respondents said that the head of the household purchased the net. 21.3% bought the net from the market, 32% from a shop, 4% from a hawker, none from a health unit, 18.9% from a community worker or an NGO and 23.7% from other sources. 88.7% slept on an elevated bed. The survey showed that 43.8% of homes had at least one net, however, these were not indicative of coverage at the national level as the sites were chosen on the basis of known use of nets. Furthermore it includes the Soroti AMREF site where ITNs were provided as part of the programme.

4.2 Net use

Uganda has a low national net usage, which is estimated to be less than 5% of total households. However studies in urban areas have found higher rates of coverage. The MCU/AMREF/Path study in 1996 ¹⁸ showed that:

- 93% of health organizations were aware that ITNs decrease the risk of death from malaria
- 9.3% said that nets were never used in their area
- 68.6% said that nets were hardly ever used
- 17.4% reported occasional use
- and less than 5% said that nets were often used
- 24% of the organizations promoted the use of ITNs
- Children and adults were given preference over adolescents.

The 1992 study in Apac, Kampala and Rukugiri revealed that 1.1% of households used mosquito nets mainly in the urban area of Fort Portal. In the rural areas of Kabarole, use of mosquito nets ranged from 0.3-1.5% of households. In Bundibugyo, the principal methods of protection were smoke from burning firewood and the use of repellent herbs. Urban Kampala and rural areas of Luwero, Soroti and Rukungiri demonstrated reasonable knowledge of malaria and the use of nets and other preventative measures. Children up to four years of age and adults used nets while older children showed limited usage of the nets. Only 50% used the nets all year round. The rest used them when mosquitoes were abundant or during the rains.

A KAP survey in Kabarole and Bundibugyo showed bednet usage of 0.02%. Respondents were deterred from high levels of usage by the price (US\$12-15) ²¹.

4.3 Net treatment / retreatment

No documented information on net treatment or retreatment identified.

4.4 Factors supportive of or obstacles to ownership

The MCU/AMREF/Path study in 1996 ¹⁷ found that those in urban areas had a greater preference for white nets than those in the rural areas. Most customers were men due to the fact that they traditionally control the finances. The principal reasons for using nets were to prevent bites. Heat and claustrophobia were the commonly reported negative aspects of net usage. Knowledge of malaria is generally poor. Knowledge of simple preventive measures such as the use of nets is also low. According to a survey in 1992 of 874 households in Rukungiri, only 35% knew that malaria is transmitted by mosquitoes compared with 71% in Apac and Kampala and 39% were unaware of its cause. The 1992 study in Apac, Kampala and Rukungiri revealed that a high percentage of mothers were not aware of any methods to prevent malaria. 95% of households in Rukungiri, 46% in Apac and 39% in Kampala had never adopted any method of protection against mosquitoes.

There is virtually no knowledge of ITNs in local populations, except where there have been ITN related projects.

Household expenditure on health

Few studies have looked at the household cost of malaria prevention and treatment. Approximately 2.7-4% of monthly household income is spent on illness in general. A study by AMREF illustrated that an average family spent up to 11,000-13,000 Uganda Shillings per month (US\$10-12) on the prevention and treatment of malaria ²². The MCU/AMREF/Path study found that the median spending on an episode of malaria was Ush 4,500 (US\$4.10) in Fort Portal and Ush 2,000 (US\$1.82) in rural areas. The same study determined that the median number of days lost per malaria episode was seven. Another study in Apac, Kampala and Rukungiri showed that malaria was responsible for 54%, 33% and 50% of absenteeism from work a month in the above districts respectively. Household medical expenditures range from US\$7 to US\$9 per capita on average ²³. Given that malaria constitutes 25% of all illness episodes, the total annual government expenditure is in the order of US\$40-50 million ²⁴.

Willingness to pay data shows prices of Ush 1,000-5,000 (US\$0.91-4.54) and Ush 1,000-2,000 (US\$0.91-1.82), more if they knew that the mosquito net could prevent malaria. The ideal price is considered to be between USh 5,000-7,000 for a net (US\$7-10.)

5. OTHER PROMOTION INFORMATION

5.1 Communication information

5.1.1 Telephone

The telephone system is fair but badly in need of expansion and better maintenance. A cellular system has been introduced as a stopgap. Internet and e-mail services are available.

5.1.2 Television

There are 8 television broadcasting stations in Uganda

Table 9: Television channels and their specifications

Channel	Coverage	Ownership	30" spot price (US\$)	Reach (%)
Uganda TV	National	Government	63	75
Channel TV	Kampala, Entebbe, Jinja	Private	58	50
STV (TV Africa)	Kampala, Entebbe, Jinja	Private	116	75
WBS	Kampala	Private	116	65
Lighthouse	National	Private	53	60
M Net	Kampala, Entebbe	Private	125	50

Total number of televisions: 220,000 (1993 est.)

5.1.3 Radio

There are 18 broadcast stations in Uganda, 10 of which are AM. Radio is an effective means of reaching a large share of the population through broadcasts in local languages and the ability to target specific areas through stations with regional coverage. An intensive national radio campaign would cost around \$90,000 to \$120,000 per year. Radio can be supplemented through the use of companies like Group Africa that have mobile units, visit 50 towns and conduct 360 road shows on an annual basis at a cost of \$30,000 (for a non-dedicated show which promotes up to 7 products).

Table 10: Radio stations and their specifications

Channel	Coverage	Ownership	30" spot price (US\$)	Reach (% area)
Radio Uganda - Blue	National	Government	13	
Radio Uganda - Red	National	Government	13	
Radio Uganda - Green	Kampala + 120 km	Government	13	
Butebo	East	Government	13	
Capitol FM	Kampala, Mbale, Mbarara	Private	28	80
CBS 88.8 FM	Kampala, Entebbe, Jinja	Private	19	80
Radio Sanyu	Kampala, Entebbe, Jinja	Private	20	75
Radio Simba	Kampala, Jinja, Masaka	Private	22	65
Radio One	Kampala, Entebbe, Jinja	Private	27	70
CBS 89.2 FM	Kampala, East	Private	19	60
Top Radio	Kampala area	Private	20	50
Star	Kampala, Masaka	Government	16	50
Power FM	Kampala area	Private Religious	20	40
Impact	Kampala area	Private Religious	13	25
Voice of Toro	West	Private	14	50
Radio West	West	Private	13	60
Radio Rukungiri	Rukungiri	Private	13	40
Radio Paidha	North, North West	Private	14	75

Total number of radios: 2.13 million

Call-in health shows have focussed on specific topics such as child development.

5.1.4 The print media

Daily newspaper circulation ²⁵: 2 per 1000 people in 1994

Table 11: Newspapers and their specifications

Title	Language	Frequency	FP price (US\$)	Circulation
New Vision	English	Daily	1,580	33,000
Monitor	English	Daily	1,450	20,000
Bukedde	Luganda	Daily	959	25,000
Njuba Times	English and Luganda	Daily	1,256	15,000
Sunday Vision	English	Sunday	1,580	38,000
Sunday Monitor	English	Sunday	1,446	40,000
Etop	Ateso	Friday	212	8,000
Rupiny	Luo	Fortnight	840	8,000
Orumuni	Baroro	Monday	893	20,000

Table 12: Magazines / Newsletters and their specifications

Title	Language	Frequency/Type	Circulation
Success	English	Monthly	15,000
Footprint	English	Quarterly in-flight	30,000
Spice	English	Weekly Leisure	10,000
Dine Out	English	Quarterly Leisure	15,000
Pearl	English	Quarterly in-flight	20,000

5.2 Advertising Expenditures

Advertising expenditures have expanded greatly following the opening of the communication market to the commercial sector which led to an increase in the number of radio and TV stations. Expenditures increased from \$3 million in 1994 to \$18 million in 1999.

Table 13: Advertising expenditures

	Number of stations / companies	Total expenditure (US\$)	Expenditure (%)
Television	1 government and 5 private.	1.8 m	12%
Radio	5 government and 16 private.	8.5 m	54%
Print – Newspaper	15	4.4 m	28%
Print – Magazines	5	0.1 m	
Print – Posters and leaflets			
Other – Outdoor Companies	3	0.8 m	5%
Other – Cinema Screens	5 screens		
Face-to-face	2		

ANNEX 1

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ANNEX 2

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8/28/00

The purpose of this document is to serve as a resource for those interested in planning and launching ITM promotional activities in Uganda.

An initial briefing book was assembled by Ms. Rima Shretta of the Malaria Consortium in December 1999, who carried out a “desk review” and compiled already-existing information on ITMs in Uganda. This expanded briefing book incorporates supplemental information obtained during in-country visits and further activities made by the staff of Academy for Educational Development, Group Africa, Inc., Johns Hopkins University, and SC Johnson and was updated by Jayne Webster of the Malaria Consortium in September, 2000.