



## **NETMARK REGIONAL AFRICA PROGRAM BRIEFING BOOK**

Insecticide Treated Materials  
in

**GHANA**

September 2000



## ABBREVIATIONS

AFRO	Africa Regional Office (World Health Organization)
AMREF	African Medical Research Foundation
<i>A. arabiensis</i>	<i>Anopheles arabiensis</i>
<i>A. funestus</i>	<i>Anopheles funestus</i>
<i>A. gambiae s.l.</i>	<i>Anopheles gambiae sensu lato</i>
<i>A. gambiae s.s.</i>	<i>Anopheles gambiae sensu stricto</i>
c.i.f.	Customs, insurance and freight
CMAZ	Churches Medical Association of Zambia
DALY	Disability Adjusted Life Years
DFID	Department for International Development
f.o.b.	Freight on board
GDP	Gross Development Product
GNP	Gross National Product
GSMF	Ghana Social Marketing Foundation
ITMs	Insecticide Treated Materials
ITNs	Insecticide Treated Nets
KAP	Knowledge Attitudes and Practices
MARA	Mapping Malaria Risk in Africa
MoH	Ministry of Health
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>
<i>P.ovale</i>	<i>Plasmodium ovale</i>
ODA	Overseas Development Assistance
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAT	Value Added Tax
WHO	World Health Organization

## **SUMMARY**

Ghana had a population of 18.4 million in 1998, with about 31% of the population below the poverty line. The GNP per capita is US\$390. The annual growth in GDP for the period 1999-2003 is expected to be 4.6% while the growth in the GNP per capita to be -1.5%. Economically, Ghana is well endowed with natural resources. It has made considerable progress under the structural adjustment programme and is one of the fastest growing economies in Africa.

Malaria is endemic throughout the country, with over 90% of the total population at risk of stable endemic malaria. It accounts for 40% of all inpatient admittances and is responsible for an average loss of 3.7 days of male and 4.7 days of female output. The National Malaria Control Programme (NMCP) outlines insecticide treated nets (ITNs) as a key strategy for malaria control and a plan for promoting the private sector availability of ITNs has been drawn. There is no local manufacturer of nets in Ghana and nets are not widely available in the marketplace. Household coverage varies from 4.4% in northern Ghana to 50-80% in some areas.

There are currently two Non-Governmental Organizations in addition to UNICEF engaged in the provision of treated nets. More than 50% of households in Ghana spend money on some form of mosquito control. Coils and aerosols are common methods.

The estimated total sales for nets over five years are at least 2,438,769 and for insecticide treatment is 3,170,400 (not taking population growth into account).

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# GHANA

Map 1: General position of Ghana



## 1. BACKGROUND

### 1.1 Demographic Information

Table 1: Demographic indicators

Population ( <i>mid-1998-millions</i> )	18.4
Average annual growth rate 1992-1998	2.6%
Age distribution <15 years	42% <sup>1</sup>
Urban population ( <i>% of total population</i> )	37
Life expectancy at birth ( <i>years</i> )	59
Infant mortality ( <i>per 1000 live births</i> )	69
Total Fertility Rate	5.1 <sup>2</sup>
Illiteracy ( <i>% of population age 15+</i> )	

### 1.1.1 Socio-economic status <sup>1</sup>

Household Income or consumption by percentage share

Lowest 10%: 3.4%

Highest 10%: 27.3% (1992)

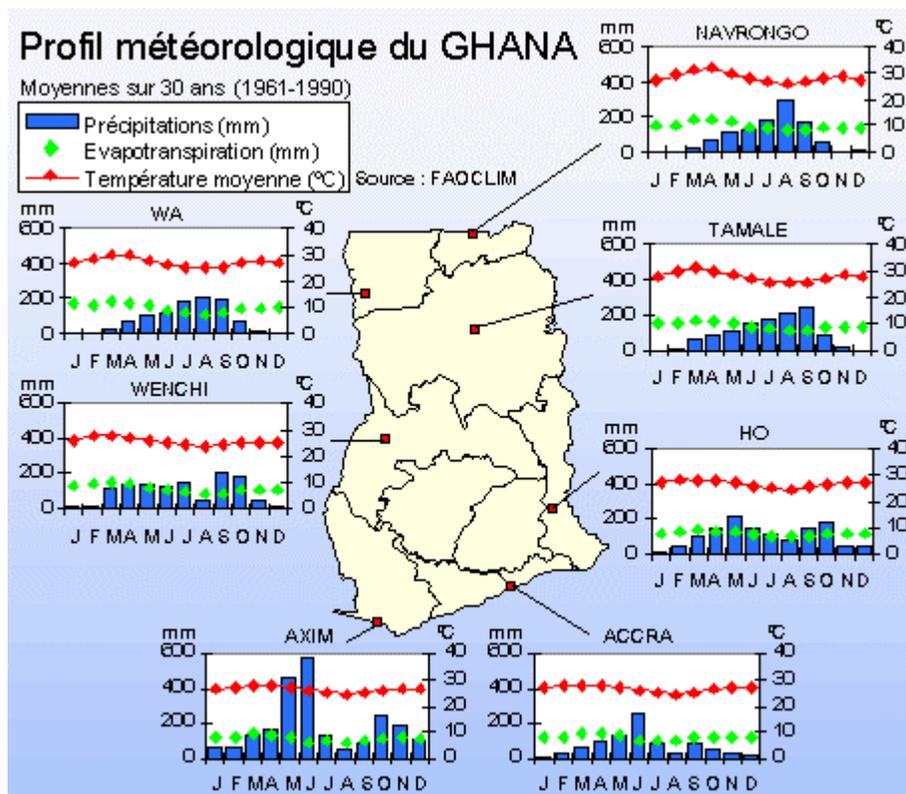
### 1.1.2 Ethnic groups and languages

The official language is English although there are several other languages spoken in the various parts (Akan, Moshi-Dagomba, Ewe and Ga).

## 1.2 Geography and Climate

Ghana is a West African country bordering the Gulf of Guinea to the south, Côte d'Ivoire to the west, and Togo to the east. The terrain is mostly that of low plains with a dissected plateau in the south-central area. The capital city is Accra and there are 10 administrative regions; Ashanti, Brong-Ahafo, Central, Eastern, Greater Accra, Northern, Upper East, Upper West, Volta, Western. The climate is tropical: warm and comparatively dry along the Southeast coast; hot and humid in the Southwest; hot and dry in the north. Dry and dusty harmattan winds occur from January to March. Average monthly temperatures and rainfall patterns for several sites within the country are shown in Map 2.

Map 2: Meteorological profile of several sites in Ghana <sup>3</sup>



Ghana is divided ecologically into the northern Savannah, the central forest belt and the coastal savannah. Whilst the north is productive agriculturally, there are food shortages at the end of the dry season <sup>4</sup>:

*Tropical rain forest: Ashanti, Brong-Ahafo and Eastern Regions and mid-Volta Region and much of the Central and Western Region.* The main economic activity is agriculture and settlements are compact. Timber and logging occur and there are some mining activities in the Eastern, Ashanti and Central and Western Region. Rainfall is heavy with two seasons (major March to August and minor September to November).

*Coastal lagoons and mangrove swamps: Volta Region and parts of greater Accra, Central and Western Regions.* Rainfall is less heavy, but also has two seasons. Settlements are compact. Principal economic activities are farming and fishing.

*Savannah: Coastal savannah, lower Volta Region, Accra plains and part of the Central Region; Northern Savannah: Upper East, Upper West and Northern Region and northern parts of Brong-Ahafo and Volta Regions.* Settlements in Upper East and Upper West are scattered and widely dispersed. The coastal savannah zone is the driest in Ghana with two rainy seasons while the northern savannah has one long rainy season.

### 1.3 Economy

The economy of Ghana is mixed, consisting mainly of a small, capital intensive, modern sector involving mining and a few manufacturing establishments, a growing informal sector of businessmen, artisans, and technicians and a large agricultural sector made up mostly of small scale peasant farmers. The agricultural sector accounts for more than half of the Gross Domestic Product (GDP) <sup>5</sup>. Ghana is well endowed with natural resources and has twice the per capita output of the poorer countries of West Africa. However, it still remains heavily dependent on international financial and technical assistance. Between 1995-7 Ghana made considerable progress under the structural adjustment programme however, inflation and depreciation of the cedi has slowed its growth. There are 10 regions and 110 districts and authority is decentralized to regional and district administrations. Women play a major economic role, as 29% of the households are female-headed. Although Ghana's economy is now one of the fastest growing in Africa with an average growth of 5% in the early 1990's the benefits of the economic adjustment have had a limited impact on the poor. The continuing depreciation of the cedi (5,300 cedi to US\$1) and the increase in interest rates (up to 48%) are having a damaging effect upon the economy.

#### 1.3.1 Basic economic indicators <sup>6</sup>

Table 2: Basic economic indicators

GNP per capita	390
Poverty (%pop below poverty line)	31
GDP (US \$ billions)	7.5
Average annual growth in GDP (1998)	4.6
Average annual growth in GNP per capita (1998)	1.9
Inflation rate (1997 est.)	27.7%
Net ODA from all donors (US\$ millions-1996)	654
Exchange Rate: new Cedis per 1 US\$ (1998)	2,324.7

\* 1 new Cedi = 100 pesewas

### **1.3.2 Exports**

Commodities: gold, cocoa, timber, tuna, bauxite, aluminum, manganese ore and diamonds. Gold, cocoa and timber are the major sources of foreign exchange.

Total value: US\$ 1.5 billion (f.o.b-1997)<sup>1</sup>

### **1.3.3 Imports**

Total value: US\$ 2.1 billion (f.o.b-1997)

### **1.3.4 Budget**

Revenue: US\$ 1.39 billion

Expenditure: US\$ 1.47 billion

### **1.3.5 Industries**

Mining, lumbering, light manufacturing, aluminum smelting, food processing.

## **1.4 Transportation**

There is a total of 953 km of railways currently undergoing rehabilitation and 39,409km of highways. The waterways are Volta, Ankobra and Tano rivers, which provide 168km of perennial navigation for launches and lighters. The main ports and harbors are Takoradi and Tema.

## **2. MALARIA SITUATION**

### **2.1 Epidemiology and Entomology**

#### **2.1.1 Burden**

Malaria in Ghana is the single most important cause of mortality and morbidity in the country, accounting for over 40% of hospital admissions, and 25% of all deaths in children under 5 years<sup>7</sup>. There is limited information on malaria-related mortality but it is estimated to account for 1-14%. Malaria was reported as the commonest disease in Ghana with an incidence rate of 1,464 per 10,000 in 1994<sup>8</sup>. The average cost of treating an episode of the disease, including the indirect costs and opportunity costs of waiting time and travel, amounted to \$8.67 (3.7 days of male output or 4.7 days of female output). The conclusion from this is that the cost of controlling malaria is lower than the lost earnings or the value output<sup>9</sup>

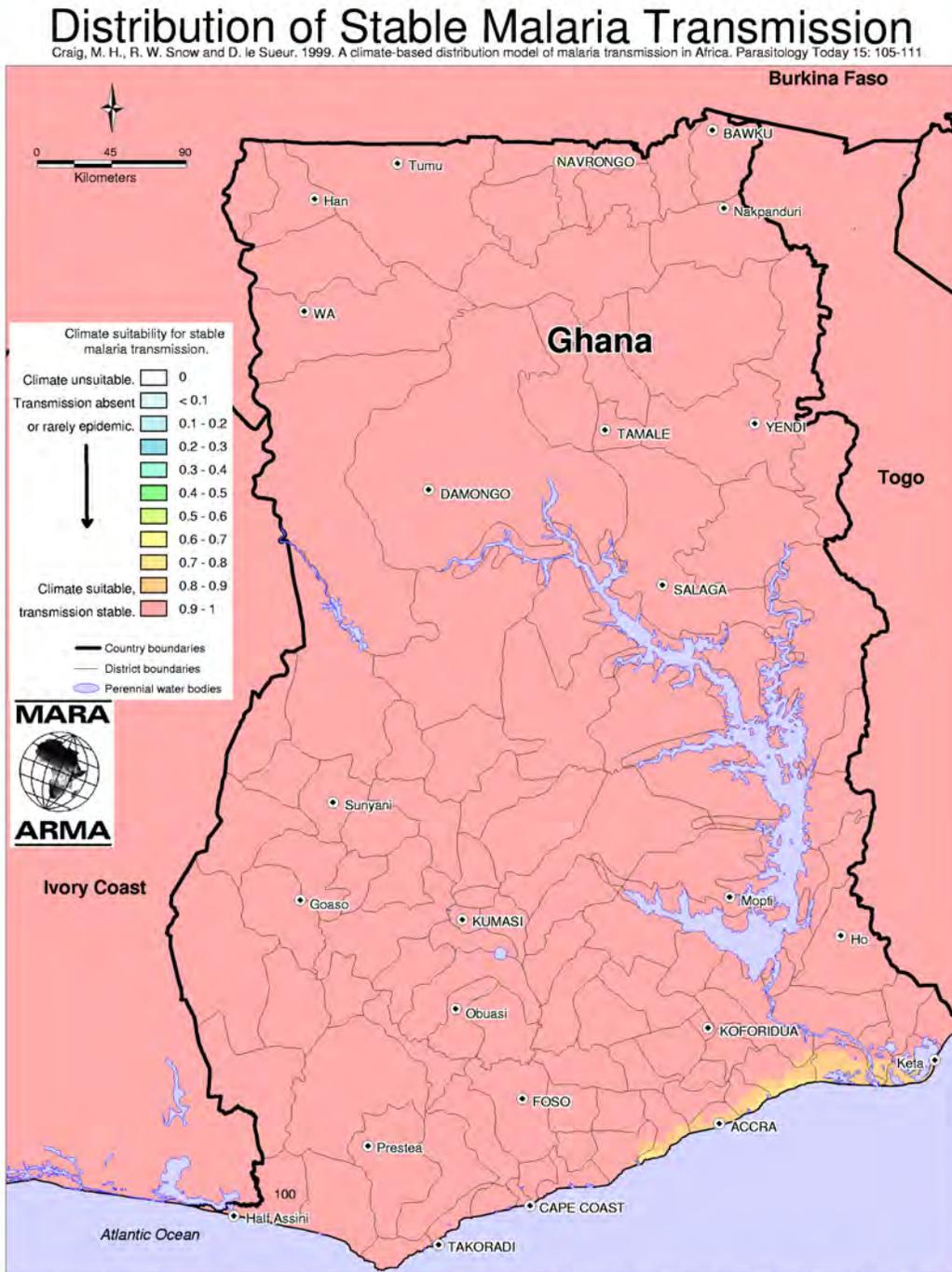
*Population at risk of stable endemic malaria: 17,202,594*

#### **2.1.2 Endemicity**

Malaria is endemic in Ghana; Map 3 illustrates that the vast majority of Ghana is climatically suitable for the transmission of stable malaria. However, this is a purely theoretical model based on climatic information, other contributing factors on the ground may mean that transmission levels vary from those of the map. The country can be divided into 5 distinct eco-epidemiological areas: tropical rainforest; coastal lagoons and mangrove swamps; savannah; urban and development. The geographical and climatic characteristics of these regions were described in section 1.2.

In the tropical rainforest areas transmission is intense with slight fluctuations. Studies on residual house spraying have had variable results depending on human activity and housing

Map 3: MARA map of climatic suitability for the transmission of stable malaria <sup>10</sup>



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  
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 Multilateral Initiative on Malaria (MIM) of the UNDP/World Bank/WHO Special Programme for Research & Training in Tropical Diseases (TDR), Swiss Tropical Institute.



quality. In the coastal lagoons and mangrove swamps transmission is perennial and intense but sharply reduced in the dry season. In the savannah areas transmission is intense but much reduced in the dry season. In urban areas transmission is rapidly disappearing from the central parts of the major urban centers owing to lack of suitable breeding sites for mosquitoes, however, there is more transmission in peri-urban areas. Malaria related to economic developments is becoming a major problem. Numerous small-scale diamond mining activities in the Eastern Region and gold mining in Eastern, Ashanti and western regions create pools of water, which are suitable breeding sites for *A. gambiae*. Irrigation projects for agriculture are also increasing vector densities.

### **2.1.3 Seasonality**

Malaria occurs all year round with peak transmission between June and October, but there are wide variations in the intensity of transmission. A malaria prevalence study in northern Ghana in 1990-1991 showed marked seasonal variation in parasite rates and mortality peaking at 85-94% in the wet season. *Plasmodium falciparum* accounts for 80-90% of all infections.

### **2.1.4 Vectors**

*A. gambiae* s.s. has been identified in all 5 ecological strata. There has been some change in the density of urban malaria vectors over the last few decades with a reduction in indoor resting and breeding intensity of *A. gambiae* s.l. despite more widespread breeding in domestic containers and polluted water, and almost complete elimination of *A. funestus*. *A. melas* is the principal vector in the coastal lagoon and swamp areas. *A. arabiensis* is the major vector in the Savannah regions.

### **2.1.5 Local resistance to insecticides**

There is limited information on resistance of the malaria vectors to insecticides in Ghana. Pyrethroid insecticide resistance has not been reported<sup>11</sup>, however, it is unclear whether this is due to its absence or due to a lack of sufficient study.

## **2.2 Malaria control**

### **2.2.1 Government control policies and strategies**

The National Malaria Control Programme was launched in 1992. Until then there was no national programme. The Ghana Ministry of Health 'Medium Term Strategic Plan for Malaria Control in Ghana' (1998-2001) is expected to improve the coverage of malaria control activity by adopting an intersectoral approach involving other government sectors and partnership with the private sector and the community<sup>12</sup>. The programme is still in its early stages of development. A program coordinator was appointed in 1994.

Ghana has committed itself to the Roll Back Malaria (RBM) Initiative, launched in September 1998, which builds on the Global Malaria Strategy with a focus on promoting public-private partnership for the control of malaria in a sector-wide approach. As a major intervention promoted under the RBM initiative, the use of Insecticide Treated Mosquito Nets (ITNs) also form a major component of Ghana's new strategic malaria control plan. A number of districts have already started to put ITN use high on their agenda.

## **2.2.2 Major actors**

### **2.2.2.1 Donors**

Several donors are partners in the public-private partnership for promotion of ITNs in Ghana (see 2.2.2.2), these include UNICEF, WHO, USAID, DFID, JICA, DANIDA and the World Bank.

Other donor support has included <sup>4</sup>:

#### *UNICEF*

Malaria control supported through improved case management and prevention with ITNs. The budget for nets in 1996 was US\$310,000, US\$120,000 for 1997 and US\$50,000 for 1998.

#### *WHO*

WHO provides support for malaria control both from its regular budget and from extra-budgetary funds including support for the Navrongo efficacy trial. The regular country budget for 1996-7 was US\$37,000.

#### *DFID*

DFID funded a project in 1997 aiming to strengthen health services for malaria control

#### *USAID*

The non-project assistance includes training for doctors for malaria.

### **2.2.2.2 NGOs**

NGOs involved in the public-private partnership for promotion of ITNs in Ghana include BASICs, PATH-Canada and Ghana Social Marketing Foundation (GSMF). PLAN International also has ITNs as a major component of their programme in the Central Region.

## **2.2.3 Past and Current Programs**

### *MoH*

Navrongo in the north of Ghana was one of the five African sites to test the efficacy of ITNs. In each of these sites nets were distributed to a rural population that had never used them. Permethrin was used to treat the mosquito nets in the study, and a 17% reduction in all cause mortality was observed <sup>13</sup>. Compliance was also higher during this season than in the dry season; January-June. In 1998, two years after the study, many people were paying to replace them, and more importantly to have them retreated at cost price. Both the MoH and private entrepreneurs have started promoting the use of ITNs within secondary schools. The availability of reasonably priced nets and insecticide has been well received on a limited scale. They were charging 5,000 cedis for one treatment with Solfac®.

Other examples of MoH ITN programs to date include examining the existing use of mosquito nets in the country <sup>16</sup>, identification of short and medium term market strategies for ITNs (1997), and developing a rapid assessment tool for measuring ITN coverage in conjunction with the Ministry of Health (1998 -99). The USAID financed private/public sector task force, which will be implementing the social marketing strategy in Ghana.

### *UNICEF*

UNICEF manages a program dealing with ITN distribution in two communities in northern Ghana, *Yendi* and *Sandema*. 71,000 nets were brought in from the UNICEF central procurement in Copenhagen (procured from Siam Dutch). About 3,900 nets have been sent to the field. 650-700 nets have been sold in the two communities through the district health workers. The cost of the nets is 12,000-13,000 cedi (about US\$5), including treatment. Re-treatment is through communal dipping programs, although the preferred method of treatment was the single treatment pack, but the price of US\$1 was considered expensive. Distribution is through 4,000 community health volunteers who are given the incentive of remuneration with one net.

### *PLAN International*

ITNs are a major strategy promoted by Plan for the prevention of malaria. Plan is involved in the supply of ITNs in the Central Region. Vestergaard nets are supplied free<sup>14</sup>. The insecticide used is deltamethrin (K-O Tab) from AgrEvo<sup>15</sup>.

### *World Health Organization (WHO)*

WHO provides the Ministry of health with technical support. There is also a research budget given to the MOH. In addition, approximately 15,000 nets and insecticide were provided to the National Malaria Control Programme by WHO for selected pediatric and maternity wards of regional and district health facilities. The programme has also trained focal persons in 7 regions on mosquito net impregnation.

### *Ghana Social Marketing Foundation*

The MOH collaborated with PATH-Canada and BASICS in 1998 to conduct an assessment of feasibility for a public-commercial partnership for the promotion of ITNs in Ghana<sup>16</sup>. The survey found strong political support and the availability of excellent technical resources among government, commercial sector and donor partners for such partnerships. Follow-up meetings involving all public and commercial stakeholders were held in the early part of 1999 to operationalize the partnership. The project has been developed by a partnership, which includes representatives of the commercial sector and the MOH, local and international non-governmental organizations, including Ghana Social Marketing Foundation (GSMF), BASICS, PATH-Canada, UNICEF and WHO as well as local funding partners, USAID, DFID, JICA, DANIDA, and the World Bank. This partnership has been formalized into a Task Force, which has duly appointed GSMF to manage the 3-year Ghana Insecticide Treated Materials (ITMs) project on behalf of the Task Force<sup>17</sup>.

As part of the intervention, a generic communications campaign will be conducted by GSMF, the purpose of the campaign is to generate wide-scale trial, continued, and correct use of ITNs, which will be distributed and co-promoted by the private sector. The campaign will seek to expand the overall ITN market, stimulating healthy competition among private sector manufacturers and distributors of ITNs. Research as part of the programme, will seek to establish whether there is a large enough potential ITN market to justify private sector investment and commercial viability. It is intended that after a time-limited investment by donors in demand creation, the private sector will carry on with the marketing of ITNs throughout the country.

### *Commercial Enterprise*

Huge Ltd. and Celgrains Company Ltd. are working together to market ITNs through a project involving 5 boarding schools in the Central Region in Cape Coast and Saltpond where in

September and October 1998, a total of 1,330 nets were treated. They are in the process of contacting six other schools in the greater Accra region. The insecticide used is Solfac® and nets are from Siamdutch from Kenya.

Currently AgrEvo are packaging K-O Tab with a net (Siamdutch) and are selling it for 25,000 cedis (US\$11.90) - 20,000 cedis for the net and 5,000 for the tablet.

### 3. CONSUMER MARKET FOR ITNs

#### 3.1 Policy context

##### 3.1.1 Policies on taxation and tariffs

Although the government of Ghana has declared 'war on malaria' and is currently lobbying with parliament to have nets and insecticides exempted from taxes and duty, results as yet have not been promising. VAT has been increased from 10% to 12.5% whilst the tariff remains at 10%.

*Nets:*

Custom duty: 25%

Sales Tax: 15%

*Insecticides:*

Custom duty: 10%

Sales Tax: 15%

Mosquito coils are not subject to the National sales tax. There are no foreign exchange controls but importers need confirmed letters of credit. There are no import restrictions.

#### 3.2 Current market

##### 3.2.1 The insect control market

More than 50% of Ghanaian households spend some money on some form of insect control <sup>16</sup>, 46% use coils only and 31% use sprays only (mostly urban households)<sup>18</sup>. Many consumers use sprays and coils on a regular basis to prevent nuisance biting. Many households in urban areas have window screens to reduce nuisance biting from mosquitoes. There are numerous anti-mosquito measures currently available in Ghana: aerosols and coils and insect powders. There are also private companies for indoor residual spraying.

Table 3: Aerosol sprays and their costs

Brand (Manufacturer)	Cost (cedis)
Mobil spray	6,500
Elf spray	6,500
A1 spray	6,500
Kill it spray	8,000
ORO spray	6,500

Other sprays available include:

A-1 Quality Goodnight®, Doom®, Raid®, Super Raid®.

Table 4: Coils and their costs

Brand (Manufacturer)	Size	Price (cedis)
Elf coil	125g	1,500
Frog coil	125g	1,200
Moon coil	125g	1,200
Good Night coil	120g	1,700
Attack coil	120g	1,500
A1 coil	120g	2,000
Antelope coil	120g	1,000
Cock coil	125g	3,000

Other coils available on the market include:

Soundsleep ®, Nightguard ®, Hit ®, Moon Lion ®, Moon Tiger ®, Leopard ®, Champion ®, Black Panther ®, Lion King ®, and others.

Electric mosquito coils: Raid ®

### 3.2.2 Mosquito Nets <sup>16</sup>

The availability of nets in Ghana is limited to those imported through informal channels from Nigeria, tailored locally from cloth or old net curtains as well as free standing infant nets from Asia. Other nets are being supplied locally to government hospitals and secondary schools on a limited basis through private sector sources. Nets are not widely available in the marketplace. Most are found at the distributor's retail outlet. There are plans to make them available in pharmacies. There is no in-country manufacturing of nets in Ghana. A company called Nylon Netting Co Ltd sell nylon fabric for about US\$10 a roll (1 m x 30 m). Tariffs on inputs (10%) reimbursed if the product is exported. Most nets are imported from Taiwan and Siamdutch in Thailand (sold through AgriMat and Huge). Other distribution is through NGO projects, specifically Plan International and Navrongo. Nets from Nigeria are distributed by Plan International, Huge and Chemdol. In general, prices vary from 8,000-15,000 cedis (US\$2.96-5.55) for an infant net, 28,000 cedis (US\$10.37) for a single net and 38,000 cedis (US\$14.07) for a double net. Another study in the greater Accra region found that prices of nets varied from 3000 cedis (US\$6.70) for a cheap net to 6000 cedis (US\$13.40) for a good quality cotton net <sup>18</sup>.

Table 5: Net manufacturers

Company	Manufacturer / Distributor	Contact
Siamdutch	Manufacturer in Thailand	Marcel Dubbleman 10/2 Sukhumvit Road, Soi 33 Bangkok, Thailand
Chemdol CC South Africa	Manufacturer in South Africa	Guy Williams P.O Box 890, Halfway House Johannesburg
Vestergaard-Frandsen Denmark	Manufacturer in Denmark	Barrie Beasley 22 BP 897, Abidjan 22 Côte d'Ivoire
Marcrich GH Ltd	Distributor	Richard Owiredu P.O Box AH 133, Achimota, Accra

Table 6: Mosquito nets available in Ghana

Country / Manufacturer	Taiwan (unknown)	Nigeria (unknown)	Nigeria (unknown)	Siam Dutch / Plan International	Chemdol / Marcrich	Siam Dutch / Huge
Form	Free-standing	Rectangular	Rectangular	Rectangular	Rectangular	Rectangular
Sizes	Single Infant	Single bed	Double bed	Family bed	Single bed	Single bed
Packaging	Plastic wrap	Plastic wrap	Plastic wrap			
Price (cedis)	8,000 – 15,000	28,000	38,000			
Product visibility	Poor	Extremely poor	Extremely poor	Selective distribution	Selective distribution	Selective distribution
Promotion activities	None	None	None		Boarding schools	Boarding schools

### 3.2.3 Insecticides

There is no local manufacturing of insecticide for the treatment of nets in Ghana. Most distribution is by AgriMat (for AgrEvo), Huge (for Bayer), Chemdol, Chemico (for Zeneca although they are not selling ICONET yet). Distribution is mainly through the existing distribution channels of companies producing (primarily agricultural) insect control products.

Table 7: Distributors of insecticides available in Ghana

Product	Distributor
Cyfluthrin	Huge Ltd., Mr. Yaw Berko Managing Director Volta Lines Building 6, Wet Farrar Ave., PO Box 13534, Ghana
Alphacypermethrin	Rhone-Poulenc Mariame Kone, Regional Sales Representative
Lambdacyhalothrin	Marcrich Ltd., Mr. Richard Owiredu Executive Director PO Box 133, Achimota, Accra Tel: 400213  Chemico Ltd., Mr. K.K. Donkoh PO Box 950, Community 1, Industrial Area, Tema, Ghana Tel: 202991 Fax: 202000
Deltamethrin	Agri-Mat Mr. Nana Yaw Obeng PO Box 15097, Accra-North Tel: 222912 Fax: 234628

Table 8: Insecticides for mosquito net treatment in Ghana

Product	Cyfluthrin	Alphacypermethrin	Lambdacyhalothrin	Deltamethrin
Manufacturer	Bayer	American Cyanamid	Zeneca	AgrEvo
Distributor	Huge	Rhone-Poulenc	Marcrich, Chemico	Agri-Mat
Form	Liquid	Liquid	Liquid	Liquid / tablet
Size	20ml		20ml	
Packaging	Bottle		Sachet	Tablet
Price (cedis)	500		< 500	
Product visibility / outlets	Limited	Not yet sold for personal use	Not yet sold for personal use	Not yet sold for personal use
Promotion materials	Newspaper			
Promotion activities	Boarding school			

### 3.2.4 Distribution networks

It is estimated that there are 170,000 retail outlets in Ghana of which 130,000 are 'table top' vendors, 30,000 'shops' and 6,000 chemical seller shops. These outlets are covered by an estimated 25,000 wholesale outlets nation-wide. Nets would probably be sold through the 'shop' as well as chemical seller shops.

Vestergaard-Frandsen holds a container full of mosquito nets and netting material for supply to distributors covering hospitals, schools and other institutional end users. They also supply Plan International for their project. It is planned that the nets be distributed from commercial outlets. Most nets are distributed through programs by NGOs.

### 3.3 Market analysis

#### Assumptions:

- In every family the mother and father share a bed/mat and two children share one bed/mat.
- The warm market is that currently using sprays, coils or repellents, which is estimated as at least 50%.
- 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> )	18.4
Estimated average family size	6
Warm market	50%
Number of families using other repellents (warm market)	1,226,667

Table 9: Estimated five-year sales  
(Pending market research)

### **3.4 Trading issues**

#### **3.4.1 Promotional Methods**

*Antimalarial brands advertised include* <sup>19</sup>:

Coils: A-1 Quality Goodnight®, New A-1 Quality Goodnight® (new attach coil), Cock® Knock-out®, New Knock-out®, Lava®, Raid®, Safe-nite®.

Aerosols: A-1 Quality Goodnight®, Mobil®, Doom, Raid®, and Super Raid®.

Insecticides: Baythroid WP®, Responsar EW®, and SOLFAC EW®

Electric mosquito coils: Raid®

The majority of advertisements coincided with the onset of the rainy season (May-Aug). The majority of advertisements placed in the Daily Graphic Newspaper were for coils (62%), followed by aerosols (22%) and insecticide (&%). Most of these were placed by the following manufacturers/agents; SC Johnson Wax, Haranand Ghana Ltd., Huge Ltd., Suncity Ltd., Super Impx Ltd., Industrial & Allied Service Ltd., Mobil Oil Ltd. And PK Industries Ltd <sup>19</sup>.

Very little marketing is being done specifically for ITNs, although one company is beginning to put advertisements in the newspaper. Some marketing is being done for the promotion of nets and insecticide, as separate and unrelated products. AgriMat is just beginning to sell KO Net packaged locally (KO tab packaged together with a net) are expected to be sold at US\$15. Very few have been sold to date. They recently participated in a Ministry of Health program to train local health district workers. Their strategy is to target pharmacies. There are advertisements for nets and insecticide in one major newspaper (Graphic). There are advertisements for Siamdutch nets placed by Huge, the representative for Bayer in Ghana.

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\* Population growth is not taken into account.

## 4. CULTURAL AND BEHAVIOURAL ASPECTS OF ITN USE

### 4.1 *Net ownership*

The ownership of nets is generally low. Nets are mandatory in boarding schools however, only a few pupils use them. Two companies are considering developing the boarding school market for ITNs as well as within hospitals and military barracks. Net use is higher in the rural areas than in the urban areas.

In the recent GSMF KAP survey all respondents who used nets, did so to stop persistent mosquito bites. Some respondents also indicated that they had purchased nets after their children had suffered from severe bouts of malaria. The preferred shape was rectangular, size at least double and the color white – as it would be possible to detect when the net was dirty and needed washing. This is in contrast to an earlier study in 1996 in northern Ghana <sup>20</sup>, which reported a preference for dark colored nets, as an incentive to prolong the period between washing bednets.

*Household coverage of nets* <sup>21</sup>

City/ district/region	Household coverage
Accra(urban)	21%
Kumasi( urban)	9%
Tamale (urban)	17%
Navrongo (rural)	93% (after trial) 5% (before trial)
Northern Ghana (rural)	4% (before trial)

### 4.2 *Net use*

Bednet usage varies widely in Ghana from 4.4% in northern Ghana <sup>22</sup>, to 50-80% in southern Ghana <sup>23</sup>. In the Awoto-Efetu Senya and Nzema-East and Techiman areas, 40-60% of the population uses untreated nets.

In the recent GSMF KAP survey in both urban and rural communities <sup>17</sup>, mosquito net usage was generally low especially amongst adults. In households with nets, typically only one net was found, and this was most often a child's sleeping net, used by children under 5.

### 4.3 *Net treatment / retreatment*

The GSMF survey found there to be a lack of awareness of ITNs. Most respondents acquired nets untreated, and did not subsequently seek treatment <sup>17</sup>. The few people (mainly in the north)

who had treated nets washed then in a basin using bar soap, no other additives were used. These nets were retreated after three months by communal dipping <sup>17</sup>.

Mothers with young children are more likely to wash their nets frequently (because of soiled bednets with feces and urine) resulting in no protection from the insecticide. Provision of wider bednets or plastic sheets or incorporation of the insecticide in soaps could improve protection for young children <sup>24</sup>.

In a survey in northern Ghana <sup>24</sup>, Finding dead mosquitoes beside the net in the morning was a strong incentive to ITN usage.

#### **4.4 Factors supportive of or obstacles to ownership, correct use, and treatment**

Knowledge of malaria and its transmission by mosquito bites is high <sup>17</sup>, as is the identification of children and pregnant women as being particularly vulnerable. However, malaria in Ghana is viewed in the same light as having a common cold, because it is so common place. Because it is so common, malaria is easily detected and treated, so the financial outlay may be considered as unnecessary <sup>25</sup>.

Cost was found to be the main barrier to purchase of nets in the GSMF survey, which was considered to be too high. Other barriers to use included heat and discomfort caused by being under the net. Safety of the insecticide is a major concern, and besides being safe the insecticide should also have a pleasant smell.

Metal buckets, rubber buckets and basins which are used to wash clothes are also used for bathing besides fetching and storing water, as insecticides are seen as poisonous by the community, this could present a barrier to using ITNs <sup>17</sup>.

A district-wide study carried out in rural populations in northern Ghana in 1997 to identify the factors responsible for the acceptance and use of ITNs revealed that, although ITNs were used and accepted because they provided protection from mosquito bites, seasonal factors were one of the key factors which influenced the dissemination and effectiveness of mosquito nets. 99% of the recipients used their ITNs in the rainy season corresponding to the season of high mosquito density and 20% used them in the dry seasons, the period of low density. Most mosquito net owners do not use their nets during the dry season, because of the heat, fewer mosquitoes and the fact that they often sleep outside <sup>17</sup>.

The low level of net usage in Ghana is probably related to several factors including the practice of sleeping on flat roofs where there is nowhere to hang nets, the scarcity of nets on the local markets, the low value of the net, and the fear among some women that men would repossess their nets if they acquired them.

## 5. OTHER PROMOTION INFORMATION

### 5.1 Communication information

#### 5.1.1 Telephone access

Ghana has a fair to poor, telephone system.

#### 5.1.2 Television coverage and costs

Table 10: Television coverage, ownership and costs

Channel	Coverage	Ownership	30" spot price (US\$)
GTV	National	Government	80
TV 3	Accra area, East, and Central	Private	80
Metro TV		Private	110

Radio (4 AM, 23 FM) and television are main sources of communication. There are 7 television broadcast stations.

Number of televisions (1997 est.): 1.9 million <sup>26</sup>

#### 5.1.3 Radio coverage and costs

Table 11: Radio coverage, ownership and costs

Channel	Coverage	Ownership	30" spot price (US\$)
Radio 1	National	Government	10
Radio 2	National	Government	10
Joy FM	Accra area	Private	20
Vibe FM	Accra area	Private	17
Lux 99.5	Kumasi area	Private	
Radio Gold	Accra area	Private	
Sky Power	South West	Private	
Choice 102.3 FM	Accra area	Private	
OAR			10
Peace FM			18

Number of radios (1997 est.): 12.5 million <sup>26</sup>

### 5.1.4 The print media

Table 12: Newspaper frequency and circulation

Title	Frequency	Circulation
Daily Graphics	Daily – national	100,000
Ghana Times	Daily - national	40,000
Mirror	Weekly	130,000
Spectator	Weekly	90,000
People & Places	Weekly	80,000
Chronicle	Weekly	70,000
Statesman	Weekly	20,000
Voice	Weekly	20,000

*Daily Newspaper Circulation: 18 per 1000 population*<sup>26</sup>

Table 13: Magazines/Newsletters, frequency and circulation

Title	Frequency / Type	Circulation
Newsweek	Weekly	
Career Woman	Monthly	10,000
Radio & TV Review	Monthly	30,000
West Africa	Monthly	30,000

### 5.1.5 Outdoor media

Outdoor ads are huge in Ghana – there are at least 20 different companies, of with Afrimedia is the largest.

## 5.2 Advertising and promotion companies

Table 14: Advertising and promotion companies

Name	International Affiliation	Phone/Fax
STB McCann		233 21 767689/ 665035
Lintas		233 21 772321/ 772498
Dapeg		233 21 224677/ 302962
Ghana Ad & Mkt	JWT	233 21 227600/ 222597
Target	Saatchi & Saatchi	233 21 224323/ 223320
Media Majique & research	O&M	233 21 226631/ 224062

### **5.3 Market research companies**

Table 15: Local Market Research Organizations

Name	Phone/Fax
Lando Services	233 21 228974 /234199
Prime Time Ltd	233 21 226564/ 231431
Research International	233 21 761141

## Annex 1

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<sup>25</sup> Group Africa promotional report

<sup>26</sup> Internet website. <http://www.infonation>

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8/24/00

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

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 ITNs in Ghana and was updated by Jayne Webster of the Malaria Consortium in September, 2000. This expanded briefing book incorporates supplemental information obtained during in-country visits made in December 1999 and April 2000 by: David McGuire, NetMark Project Director; Will Shaw, NetMark Deputy Director; Michael Macdonald, NetMark Technical Advisor; and Halima Mwenesi, NetMark Regional Research Coordinator.