

**Supply and Demand
Research for Insecticide
Treated Nets**

**in D.R. Congo, Ghana, Senegal,
Tanzania, Uganda, Zambia**

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1.0 INTRODUCTION

This report on Supply and Demand of Insecticide Treated Nets (ITN) in six African Countries has two purposes. First, it is part of an overall study by MEDA Trade Co. Inc. (MEDA), to identify and analyse market trends relative to ITNs in Sub-Sahara Africa in an attempt to select countries and strategies for providing further assistance to businesses involved in production and distribution of ITNs. Second, it is meant to be a resource to those businesses who may be interested in expanding production or marketing activities throughout Africa. This project focussed on the countries of D.R. Congo, Ghana, Senegal, Tanzania, Uganda, and Zambia. These countries were chosen so as to provide information from the various regions of east, west, and south/central Africa. The research methodology outline appears in appendix 1. Country contacts, where available, appear in appendix 2.

In the D.R.Congo, a local consultant was contracted to conduct a survey of ITN supply and demand in the Kinshasa region. MEDA consultants travelled to Ghana and Senegal to research and assess the local markets, particularly surrounding the major urban centres. Previous reports by PATH Canada and BASICS provided useful information and insights into the ITN situation in Ghana.

In East and Southern Africa, a MEDA consultant travelled to Tanzania, Uganda, Kenya, and Zambia to research both the public and private sector involvement in the production and distribution of ITNs. Over the course of three months, numerous manufacturers, distributors, and NGOs were surveyed and their input used in local and regional market analyses.

Ghana and Tanzania appear to lead the way in the research and promotion of ITNs within Africa. Common themes which appear from all countries relate to the need for significant investment in the promotion and advertising of ITNs, the potential role for partnerships in developing distribution and marketing strategies, the ongoing need for advocacy in the area of taxes and tariffs and finally the need to be very careful to ensure that subsidies support long lasting private sector solutions for widespread distribution of ITNs. This report will provide the basis for addressing some of these issues in the next stage of this project.

This work undertaken by MEDA has been financed by the International Development Research Centre (IDRC Canada) as part of their overall effort to promote the use of ITNs as an effective and proven intervention for the control of Malaria in Africa.

Each section following is broken into two distinct parts. The first part is an overview of the socio- political situation in each country and the second part is an analysis of the supply and demand for ITNs in each country.

2.0 TANZANIA - Socio-Political

2.1 Introduction

Location: Eastern Africa, bordering the Indian Ocean, between Kenya and Mozambique

Land Boundaries: Burundi, Kenya, Malawi, Mozambique, Uganda, Zambia

Coast: Indian Ocean

Climate: varies from tropical along the coast to temperate in highlands

Elevation Extremes:

lowest point: Indian Ocean 0 m

highest point: Kilimanjaro 5,895 m

Terrain: plains along the coast; central plateau; highlands in north, south

Environment - current issues: soil degradation; deforestation; desertification; destruction of coral reefs threatens marine habitats; recent droughts affected marginal agriculture

2.2 Political

2.2.1 Government

Independence: April 26 1964; Tanganyika became independent December 1961 (from UK administered UN trusteeship); Zanzibar became independent December 1963 (from UK); Tanganyika united with Zanzibar April 1964 to form the United Republic of Tanganyika and Zanzibar; renamed United Republic of Tanzania October 29 1964

Type of Government: republic

National Capital: Dar es Salaam

- some government offices have been transferred to Dodoma, which is planned as the new national capital by the end of the 1990s; the National Assembly now meets there on regular basis

Other major towns: Arusha, Dodoma, Mwanza

Administrative Divisions: 25 regions; Arusha, Dar es Salaam, Dodoma, Iringa, Kigoma, Kilimanjaro, Lindi, Mara, Mbeya, Morogoro, Mtwara, Mwanza, Pemba North, Pemba South, Pwani, Rukwa, Ruvuma, Shinyanga, Singida, Tabora, Tanga, Zanzibar Central/South, Zanzibar North, Zanzibar Urban/West, Ziwa Magharibi

Constitution: April 25, 1977; major revisions October 1984

Executive Branch:

chief of state: President Benjamin William MKAPA (since November 23, 1995); Vice President Omar Ali JUMA (since November 23, 1995)

head of government: President Benjamin William MKAPA (since November 23, 1995); Vice President Omar Ali JUMA (since November 23, 1995); the president

is both chief of state and head of government

note: Zanzibar elects a president who is head of government for matters internal to Zanzibar; Dr. Salmin AMOUR was elected to that office on October 22, 1995 in a popular election

cabinet: Cabinet ministers, including the prime minister, are appointed by the president from among the members of the National Assembly

elections: president and vice president elected on the same ballot by popular vote for five-year terms; election last held October 29 - November 19, 1995 (next to be held October 2000); prime minister appointed by the president

Legislative Branch: unicameral National Assembly or Bunge (274 seats, 232 directly elected by universal adult suffrage, 37 allocated to women nominated by the president, five to members of the Zanzibar House of Representatives; members serve five-year terms); note - in addition to enacting laws that apply to the entire United Republic of Tanzania, the Assembly enacts laws that apply only to the mainland; Zanzibar has its own House of Representatives to make laws especially for Zanzibar (the Zanzibar House of Representatives has 50 seats, directly elected by universal suffrage to serve five-year terms)

elections: last held October 29 - November 19, 1995 (next to be held October 2000)

Political Parties: Chama Cha Mapinduzi (CCM), civic United Front (CUF), National Convention for Construction and Reform (NCCR), Union for Multiparty Democracy (UMD), Chama cha Demokrasia na Maendeleo (CHADEMA), Democratic Party, United Democratic Party (UDP)

2.2.2 Present Conflict/Instability

Dispute with Malawi over the boundary in Lake Nyasa (Lake Malawi); Democratic Republic of Congo-Tanzania-Zambia tri-point in Lake Tanganyika may no longer be indefinite since it has been informally reported that the indefinite section of the Democratic Republic of Congo-Zambia boundary has been settled.

- Border regions are the recipients of refugees from surrounding countries in turmoil.
- There are periodic religious clashes between Muslims and Christians.

2.3 Economy

Overview:

Tanzania is one of the poorest countries in the world. The economy is heavily dependent on agriculture, which accounts for 57% of GDP, provides 85% of exports, and employs 90% of the work force. Topography and climate conditions, however, limit cultivated crops to only 4% of the land area. Industry accounts for 17% of GDP and is mainly

limited to processing agricultural products and light consumer goods. The economic recovery program announced in mid-1986 has generated notable increases in agricultural production and financial support for the program by bilateral donors. The World Bank, the IMF, and bilateral donors have provided funds to rehabilitate Tanzania's deteriorated economic infrastructure. Growth in 1991-97 has featured a pickup in industrial production and a substantial increase in output of minerals, led by gold. Natural gas exploration in the Rufiji Delta looks promising and production could start by 2002. Recent banking reforms have helped increase private sector growth and investment.

2.3.1 General Statistics

Population	30,608,769 (July 1998 est.)
Population Growth Rate	2.14 % (1998 est.)
Age Structure:	<i>0-14 years: 45%</i> <i>15-64 years: 53%</i> <i>65 years and over: 2%</i>
Infant Mortality Rate	96.94 deaths/1000 live births (1998 est.)
Life Expectancy at Birth	<i>male: 46.37 years</i> <i>female: 44.22 years (1998 est.)</i>
Total Fertility Rate	5.49 children born/woman (1998 est.)
Literacy Rate	<i>total population: 67.8%</i> <i>male: 79.4 %</i> <i>female: 56.8 (1995 est.)</i>
Languages	English (official), Swahili (official), Arabic, others

2.3.2 Economic Indicators

GDP (\$US million)	6.32 (1996)
GDP growth (%)	8.7 (1997)
GDP/head (\$US)	205 (1997)
Inflation (%)	16.1 (1997)
Unemployment Rate (%)	NA

Budget	<i>revenues: \$959 million</i> <i>expenditures: \$1.1 billion, including capital expenditures of \$214 million (FY96/97 est.)</i>
Foreign Debt (US\$ billion)	8 (1997 est.)
Currency	1 Tanzanian Shilling (Tsh) = 100 cents
Exchange Rate (official): Tanzanian Shilling (TSh) per US\$1	659.20 (Sept. 1998)
Main Exports	Coffee, Cotton, Manufactures
Main Economic Activities	Agriculture

2.3.3 Industries & Natural Resources

Industries: primarily agricultural processing (sugar, beer, cigarettes, sisal twine), diamond and gold mining, oil refining, shoes, cement, textiles, wood products, fertilizer, salt

Natural Resources: hydro-power potential, tin, phosphates, iron ore, coal, diamonds, gemstones, gold, natural gas, nickel

Agriculture Products: coffee, sisal, tea, cotton, pyrethrum, cashews, tobacco, cloves (Zanzibar), corn, wheat, cassava, bananas, fruits, vegetables; cattle, sheep, goats

2.3.4 Trade

Exports

total value: \$760 million (f.o.b., 1996)

commodities: coffee, manufactured goods, cotton, cashew nuts, minerals, tobacco, sisal (1995)

partners: EU, Japan, India, US (1995)

Imports

total value: 1.4 billion (c.i.f., 1996)

commodities: consumer goods, machinery and transportation equipment, crude oil

partners: EU, Kenya, Japan, China, India

3.0 ITN MARKET IN TANZANIA

Tanzania historically has been a leader in research on malaria and malaria control. It was here that the original research on treatment of nets with insecticide was conducted and this led to the development of the home treatment kit. Today, it is home to three of the most innovative social marketing projects in Africa, namely KINET, PSI and TEHIP.¹ Perhaps more importantly, it is also home to three net manufacturing companies, Sunflag, A to Z and Textile Manufacturers of Tanzania (TMTL) Ltd.

In recent years, numerous meetings have been convened with the various stakeholders in the ITN sector – both public and private sector. These have resulted in the development of specific strategies for action.² PSI and TEHIP have played important roles in facilitating communication between various key players. They also make available knowledgeable resources on nets and insecticide, issues of quality, packaging, and health trends/statistical data/evidence based planning.

3.1 Supply Issues

3.1.1 Production

3.1.1.1 Nets

- Manufacturing in-country is by:
 - Sunflag Ltd ('Mmbu Net');
 - A to Z Textiles Ltd. ('Safi Net');
 - Textile Manufacturers of Tanzania Ltd. (TMTL) ('Afya/Health Net')
- Importation is from: Kenya, Thailand, China, Asia
- Distribution is by:
 - Local Manufacturers;
 - PSI/SMITN ('Njozi Njema' net, 'Lea Mwana' net);
 - Local Shops/Hawkers (locally produced nets, 'B-52' nets)
- Netting produced locally is also widely sold and used for small scale assembly of nets.
- Local manufacturers have branded and packaged their own nets.
- Present challenges are in:
 - the fluctuations in and high cost of electricity - (production generally requires a generator).
 - the necessary importation of all yarn (polyester as petroleum bi-product, is linked to the world oil prices).
 - the effects of inflation on prices of raw materials.

¹National Malaria Control Programme (NMCP)/MOH, PSI Tanzania, PATH Canada. "Insecticide Treated Nets in Tanzania: Marketing Challenges for the Public and Private Sector". May 5-7, 1998. White Sands Hotel, Dar es Salaam.

3.1.1.2 Insecticide

- No manufacturing is done in-country.
- Importation is from Kenya, through company regional offices.
- Distribution is by:
 - the chemical companies who have representatives dealing primarily with the agrochemical market (farmers/large agricultural estates).
 - PSI/SMITN ('Ngao' K-O Tab in project areas).
 - very few commercial outlets.

3.1.2 Distribution

3.1.2.1 Nets

- Main districts where nets are presently distributed are those areas around the main urban centers, since manufacturers deliver to major centers. However, rural areas are recipients either of informal trade or NGO projects. Some of the project areas include Dar es Salaam, Morogoro, Rufigi, Dodoma, Kilombero, Mtwara, Bagamoyo.
- Road infrastructure is perhaps the worst in the region. This is a major obstacle to more widespread distribution. Vehicle repairs and travel time increase costs significantly.
- Main distribution channels: NGOs, National Malaria Control Program (NMCP), Social Marketing Programs (KINET, PSI/SMITN, TEHIP), local shops, street vendors, regional exports (Malawi, Kenya, Uganda, Zambia, DR Congo). Largest distributors are the social marketing programs.
- Manufacturers are actively developing export markets.

3.1.2.2 Insecticide

- The only individual treatment packages available have been those produced and sold by PSI. The recent launch of AgrEvo's K-O Tab kit, and the anticipated launch of kits by Zeneca and Cyanamid, will hopefully change this situation. Otherwise, the promotion of ITNs requires the use of larger quantities of insecticide to be used in communal dipping programs.
- Other insecticide available at a district level is for residual spraying.
- Main Distribution Channels include all major farms/estates, NGOs, District Health Councils, medical institutions and

schools.

3.1.3 Trade Barriers

Import Duty: 5% on finished nets.

Sales Tax: 10% on zero rated items (ie. nets) - (1997-98 budget)

VAT: 20%

Tax Issues:

- In 1992, the government waived tariffs on ready-made nets (putting local manufacturers at a disadvantage because raw materials are still taxed).
- Some essential items have been exempted from VAT but nets and insecticide not included.
- PSI hired Price Waterhouse to research and address the tax issue.
- The 1999-2000 budget made allowances for offsetting input taxes with output taxes, but in reality, such refunds are difficult to obtain.

3.2 Current Market

3.2.1 Local Market

3.2.1.1 Nets

- Most nets being sold are manufactured locally.
- A small number of nets on the street from China ('B-52') but are considered to be inferior.
- Styles & sizes available are:
 - conical/rectangular – single (4x5x6) (TSh 2800-6000/\$3.90-8.40).
 - double (5x5x6) (TSh 3800-4800/\$5.35-6.75).
 - extra double (6x5x6) (TSh 3100-6500/\$4.35-9.15).
 - king (TSh 8000/\$11.25 - special order).
 - Rectangular nets are more expensive than conical.
- Colours available are: white, beige, blue, green, pink, purple, yellow, orange (varying shades).
 - Coloured nets are slightly more expensive.
- Men tend to make most net purchases but retailers are quick to emphasize that both men and women use the nets.
- Nets are widely available in shops and highly visible on the streets and in the market places of Dar es Salaam. (There was a distinct increase in the number of nets being sold in Dar es Salaam from June to September 1999.) They are also available, but to lesser degrees, in other urban areas. In rural areas, they may be found in limited numbers in local shops or, more likely, through informal transport and resale by traders.

- Netting is also in demand as many tailors will make nets to individual specifications.

3.2.1.2 Insecticide

- Individual treatment packages ('Ngao') are found mainly in PSI project areas and distribution points.
- Other, recently launched individual treatment kits are, as yet, unavailable.
- Awareness of ITNs is increasing but the supply of insecticide is limited (mostly to PSI project areas) and not easily accessible, thus leaving potential customers frustrated.

3.2.1.3 ITNs

- Pre-impregnated nets are presently unavailable.

3.2.2 NGO Market

NGO involvement in this sector is limited, with ITNs being a small component of a few scattered projects in rural areas. The majority of ITN promotion and distribution is being done by three social marketing programs (KINET, PSI, TEHIP). PSI, in particular, has been in the forefront of developing the market, promoting ITNs, and in facilitating manufacturing and distribution networks.

3.2.2.1 AMREF

- ITNs are not a major focus but there are plans to incorporate malaria prevention in the future Strategic Plan.
- Over 50% of projects in Tanzania are related to reproductive health; they have plans to diversify.
- ITNs would be incorporated under maternal and child health programs.
- Present HIV projects are targeting large corporations and community based organizations.
- Other projects involve training trainers and some work in very remote communities.
- PSI set up an 'Ngao' depot at the AMREF office following the consultant's contact.

3.2.2.2 Save the Children

- There is a high level of awareness of ITNs and a keen interest in collaborating with the private sector, especially in facilitating connections between consumers and distributors.

- ITNs are part of a school-based health promotions program in Zanzibar.
- The organization is also involved in health training programs, street children, basic education programs.
- They have also collaborated with Ministry of Health, Ministry of Education, and UNICEF programs.
- At the end of 1998, a pilot test was conducted with 100 nets (from TMTL) and Ngao (from PSI). There was high demand and, since then, they have supplied 100-300 nets every month.

3.2.2.3 World Vision

- ITNs are part of a project in Kahama District, working with the District Health Management Team (DHMT) ('Kahama Child Survival for Development Project: Phase II').
- The target is for 15,000 nets to be sold from 1997-2000. 7,000-8,000 nets are presently being distributed. 5,000 more are being ordered.
- Nets come from Sunflag Ltd. (Nets were initially bought from private dealers for much higher prices).
- Presently, nets are bought at TSh3,000 and resold at TSh2000 (subsidized sales).
- Insecticide (liquid form) is from the Medical Stores Department (MSD) of the Ministry of Health.
- Insecticide costs TSh18,000/1L (treats 20 nets).
- Centralized dipping is used for treatment of nets.
- There is a plan for phasing out subsidization by the project end.
- The target group is children under nine years of age. Also, multiple net usage for households is being promoted.
- A revolving fund is used to deal with issues of sustainability.
- Other ideas being explored are of credit schemes, and assembly of nets by local women as income generation.

Social Marketing Projects:

3.2.2.4 KINET

- This project managed through the Ifakara Research Centre where original research on malaria, malaria control, and specifically, treated nets originated.
- The research centre is located a fair distance from Dar es Salaam and therefore no personal visit was made.

- This was the first project to brand a treatment product to sell in the project area and to promote through social marketing techniques.

3.2.2.5 Population Services International (PSI) – “Social Marketing of Insecticide Treated Nets” (SMITN) Project

- This is a 2 year project (1998-2000), funded by DFID, to promote and sell ITNs using a social marketing approach (An extension is anticipated pending project evaluation).
- There are 4 project areas - Dar es Salaam, Morogoro, Dodoma, Mtwara (possible extension of funding would enable to the project to go nationwide).
- Baseline household surveys and outlet surveys were carried out in project areas.
- Branded products include locally made nets sold as: ‘Njozi Njema’ (‘Sweet Dreams’) and ‘Lea Mwana’ (family net) and the branded K-O tab insecticide sold as: ‘Ngao’ (‘Shield’).
- Nets are sold in medium and large sizes, in two colours of white and green.
- Nets are procured from local manufacturers (PSI is now using a tender system).
- Nets sell to the consumer for approximately TSh3,500/\$5.22, TSh3,800/\$5.67.
- K-O tab, from AgrEvo, sells for TSh400/\$.60 (actual price is TSh700/\$1.00).
- Sales are subsidized for insecticide treatment and for ‘Lea Mwana’ net.
- The project is beginning to incorporate the ‘Ngao’ with the net into one package.
- The goal is to sell 200,000 nets and 500,000 net treatments in the 18 months after the project’s launch.
- Sales by June 1999, for nets were 103,034 and for ‘Ngao’ were 201,920 (including sales outside project areas).
- Target markets are children and pregnant women, the most vulnerable and most economically and socially disadvantaged groups.
- Distribution is via sales agents in each region, through private sector (shops and hawkers), public sector (DHMT, clinics, dispensaries, hospitals), Mission Hospitals, NGOs, other community groups.

3.2.2.6 Tanzania Essential Health Interventions Project (TEHIP)

- This project is a joint initiative between IDRC (Canada) and the Ministry of Health (Tanzania) in developing a sustainable and integrated strategy for health care reform, through methods of evidence-based planning.
- Projects sites are in Morogoro and Rufigi Districts where they are part of the Integrated Management of Childhood Illnesses (IMCI) strategies which are being implemented by the MOH in seven districts.
- TEHIP provides a valuable information resource on malaria, malaria control, and insecticide treated nets.
- TEHIP has been involved in facilitating the ordering of nets and insecticide by District Health Councils, for local malaria control programs.

3.3 Marketing

3.3.1 Private Companies

- Minimal investment has been made by companies in the promotion of ITN products. The main investments are in production and distribution.
- A to Z has recently initiated 'mobile sales', sending out a lorry to retail nets in rural areas. This has met with some success although it requires significant investment.
- A marketing plan has been done by PSI for their projects, including baseline data compiled for the project areas.
- The most significant marketing has been done by PSI, in terms of developing a marketing approach, doing promotions, and monitoring sales, etc.

3.3.2 National Malaria Control Program (NMCP)/MOH

- NMCP's Plan of Action identifies promotion and use of ITNs as a key strategy in malaria control.
- NMCP's Accelerated Plan identifies the necessity of establishing distribution systems for ITNs.
- NMCP is working on the production of IEC materials.
- NMCP has trained nurses on net impregnation.
- NMCP has supplied hospitals with nets and insecticide.

3.4 Knowledge of ITNs

3.4.1 Public

- In urban centers, most people know about nets and where to find nets but few are aware of the ITN concept.
- Knowledge of the ITN concept is limited to areas where projects have

sensitized the population.

3.4.2 Media

- Media has been used primarily by PSI/SMITN project (with hesitancy because the radio goes nationwide and the project doesn't). Promotion is done via radio, drama, posters, T-shirts, baby bibs, hats, pens, key chains, etc.
- PSI and Kay's Hygiene use advertising painted on their vehicles.
- PSI has developed various tag lines to promote the product (ie. "Mosquito net treatment to protect against mosquitos").
- All media is primarily in Swahili (very little in English).
- Promotion done in both English and Swahili can reach the majority of the population.

3.5 Past History of Malaria Prevention

- Residual spraying programs are commonly used for vector control.
- Chloroquine has been the drug of choice as treatment. It has recently been removed as the official 'first line' treatment for malaria. Other drugs are currently being investigated to replace it.

3.5.1 Traditional Methods

- Traditional methods of mosquito control that are used include burning of dung, leaves/grass, herbs, planting of the Neem tree and sewing grass mats together into a type of 'sleeping bag' to reduce mosquitos biting.

3.5.2 History of Net Use

- There is very little previous tradition of net use but this is definitely growing.

3.6 Demographics

Population of main urban areas:

Dar es Salaam	1,734,000 (1995)
Zanzibar	375,539 (1988)
Mwanza	233,013 (1988)
Tanga	187,634 (1988)
Dodoma	134,0000 (1990)
Total	2,664,186 or 8.9% of total population (29,898,774) (1997)

4.0 UGANDA - Socio-Political

4.1 Introduction

Location: Eastern Africa, west of Kenya

Land Boundaries: Democratic Republic of Congo, Kenya, Rwanda, Sudan, Tanzania

Coast: none (landlocked)

Climate: tropical; generally rainy with two dry seasons (December to February, June to August); semiarid in northeast

Elevation Extremes:

lowest point: Lake Albert 621 m

highest point: Margherita (Mount Stanley) 5,110 m

Terrain: mostly plateau with rim of mountains

Environment - current issues: draining of wetlands for agricultural use; deforestation; overgrazing; soil erosion; poaching is widespread

4.2 Political

4.2.1 Government

Independence: October 9, 1962 (from UK)

Type of Government: republic

National Capital: Kampala

Other major towns: Jinja, Mbale, Masaka

Administrative Divisions: 39 districts; Apac, Arua, Bundibugyo, Bushenyi, Gulu, Hoima, Iganga, Jinja, Kabarole, Kalangala, Kampala, Kamuli, Kapchorwa, Kasese, Kabile, Kiboga, Kisoro, Kitgum, Kotido, Kumi, Lira, Luwero, Masaka, Masindi, Mbale, Mbarara, Moroto, Moyo, Mpigi, Mubende, Mukono, Nebbi, Ntungamo, Pallisa, Rakai, Rukungiri, Soroti, Tororo

Constitution: October 8, 1995

Executive Branch:

chief of state: President Lt. Gen. Yoweri Kaguta Museveni (since seizing power January 29, 1986)

head of government: President Lt. Gen. Yoweri Kaguta Museveni (since seizing

power January 29, 1986); Prime Minister Kintu Musoke (since November 14 1994); the president is both chief of state and head of government; the prime minister assists the president in the supervision of the cabinet
cabinet: Cabinet appointed by the president from among elected legislators
elections: president elected by popular vote; election last held May 9, 1996 (next to be held by May 31, 2001); note- first popular election for president since independence in 1962; prime minister appointed by president

Legislative Branch: unicameral National Assembly (276 members serve five-year terms; 214 directly elected by universal suffrage, but 62 are nominated by legally established special interest groups and approved by the president - women 39, army 10, disabled 5, youth 5, labor 3)
elections: elections to the National Assembly took place on June 27, 1996 (next election to be held in 2001)

Political Parties: only one political organization, the National Resistance Movement or NRM is recognized; note - this is the party of President Museveni; the president maintains that the NRM is not a political party, but a movement which claims the loyalty of all Ugandans. Other political parties do exist but are prohibited from sponsoring candidates. The new constitution requires the suspension of political party activity until a referendum is held on the matter in 2000. (Other political parties that exist: Ugandan People's Congress (UPC), Democratic Party (DP), Conservative Party (CP).)

4.2.2 Present Conflict/Instability

Uganda presently has numerous rebel groups operating within its borders, some which are fighting against the government and others which use Uganda as a base from which to wage wars in neighbouring countries such as Sudan, Rwanda, and the Democratic Republic of Congo (DRC). Ongoing rebel fighting and instability is most reported in the northern, western, and south western regions.

In the recent war in the DRC, Uganda has been allied with Rwanda in opposing DRC President Laurent Kabila. Both the regional and national instability of this area effect development and investment possibilities.

4.3 Economy

Overview:

Uganda has substantial natural resources, including fertile soils, regular rainfall, and sizable mineral deposits of copper and cobalt. Agriculture is the most important sector of the economy, employing over 80% of the work force. Coffee is the major export crop and accounts for the bulk of export revenues. Since 1986, the government - with the support of foreign countries and international agencies - has acted to rehabilitate and

stabilize the economy by undertaking currency reform, raising producer prices on export crops, increasing prices of petroleum products, and improving civil service wages. The policy changes are especially aimed at dampening inflation and boosting production and export earnings. In 1990-97, the economy turned in a solid performance based on continued investment in the rehabilitation of infrastructure, improved incentives for production and exports, reduced inflation, gradually improved domestic security, and the return of exiled Indian-Ugandan entrepreneurs.

4.3.1 General Statistics

Population	22,167,195 (July 1998 est.)
Population Growth Rate	2.85% (1998 est.)
Age Structure:	0-14 years: 51% 15-64 years: 47% 65 years and over: 2%
Infant Mortality Rate	92.86 deaths/1000 live births (1998 est.)
Life Expectancy at Birth	male: 41.81 years female: 43.41 years (1998 est.)
Total Fertility Rate	7.09 children born/woman (1998 est.)
Literacy Rate	total population: 61.8% male: 73.7 % female: 50.2% (1995 est.)
Languages	English, Ganda/Luganda, Swahili, others

4.3.2 Economic Indicators

GDP (\$US million)	6,300 (1997)
Real GDP growth rate (%)	7.6 (1991-1996)
GDP/head (\$US)	309 (1997)
Inflation (%)	7 (1997)
Unemployment Rate	N/A

Budget	revenues: \$869 million expenditures: \$985 million, including capital expenditures of \$69 million (FY95/96)
Foreign Debt (US\$ billion)	3.5 (1996 est.)

Currency	1 Ugandan shilling (Ush) = 100 cents
Exchange Rate (official): Ugandan Shillings per US\$1	1,254 (Sept. 1998)
Main Exports	Coffee, Cotton
Main Economic Activities	Agriculture

4.3.3 Industries & Natural Resources

Industries: sugar, brewing, tobacco, cotton textiles, cement

Natural Resources – copper, cobalt, limestone, salt

Copper and Cobalt mines found in Kilembe and Kasese. On going exploration for cobalt, nickel, gold, tungsten, tin, and possible oil reserves. No proven oil or gas resources.

Agriculture – products: coffee, tea, cotton, tobacco, cassava, potatoes, corn, millet, pulses; beef, goat meat, mild, poultry

4.3.4 Trade

Exports

total value: \$604 million (f.o.b., 1996)

commodities: coffee, gold, cotton, tea, corn, fish

partners: Spain, France, Germany, Italy, Netherlands (1995), also the U.S.A.

Imports

total value: \$1.2 billion (c.i.f., 1996)

commodities: machinery, chemicals, fuel, cotton piece goods, transportation equipment, food

partners: Kenya, UK, Japan, Germany, India (1995)

Uganda Manufacturers Association

- the single largest organization representing the broad industrial and commercial sectors of Uganda's economy and an important forum and voice for the private sector of the country.

- headquarters located at the Lugogo Show Grounds near Kampala

- Membership – (approx) 600 small, medium and large enterprises (private and public sector).

- Information Center – a business matching service.

- business publications (Business Bulletin, The Manufacturer quarterly journal, a

Manufacturers Directory).

5.0 ITN MARKET IN UGANDA

In Uganda, the overall cost of malaria may be as high as 1% of the gross domestic product (GDP). Documented epidemics occurred in Kabale and Rukungiri Districts in 1992 and 1994. In 1998, there was a malaria epidemic in all the South-Western districts.

Uganda was identified by WHO as one of the African countries for an accelerated approach to malaria control. Thus, 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.²

5.1 Supply Issues

5.1.1 Production

5.1.1.1 Nets

- No manufacturing is done in-country.
- Importation is from:
 - Vietnam/India – Vestergaard Frandsen (EA) Ltd.,
 - Tanzania (imported and smuggled) - Sunflag Ltd., A to Z Textiles Ltd.,
 - Kenya – Sunflag Ltd.,
 - China – (bright green and pink B-52 nets),
 - Dubai – (collapsible, baby cot nets),
- Distribution is by:
 - Vestergaard Frandsen (larger quantities, not prepackaged),
 - ROMEX Ltd. (Vestergaard nets repackaged with ROMEX label),
 - Joint Medical Stores (provide warehouse space and sell Vestergaard nets),
 - Local Shops ('Mmbu' nets, 'Safi' nets, 'B-52' nets, baby cot nets)
- Net assembly: There has been discussion by a local expatriate wanting to start a cottage industry. Also, some NGOs are considering this as a form of income generation.
- Wholesale Nets are generally available as follows:
 - Colours: White
 - Sizes and Prices: Rectangular - medium - 130x180x150 - (\$4.85); double - 190x180x150 (\$5.25) (to compensate for inflation, prices vary if payments are in US\$ or USh).

5.1.1.2 Insecticide

²Kilian, Dr. Alert. October 1998. "Malaria Control in Uganda: Assessment of the Assignment of the Technical Advisor Malaria Control at the Ministry of Health" and "Progress Report January-September 1998".

- No manufacturing is done in-country.
- Importation is primarily from Kenya.
- Distribution is by:
 - Twiga Chemicals (ICON/ICONET from Zeneca).
 - The other chemical companies (AgrEvo, Bayer, Cyanamid) have local representatives but do not have offices in Kampala.
- Prices are: ICON – \$130/1L (166 nets), \$74/500ml.

5.1.2 Distribution

5.1.2.1 Nets

- Main districts where nets are presently distributed (either directly supplied by main distributors or through NGOs) are Kampala, Soroti, Tororo, Luweru, Kasese, Katakwi, Kabale, Nakasongola, Lira, Apac.
- Most nets are found in and around Kampala. Projects in other districts are small, usually distributing less than 1000 nets. In attempts to avoid duplication of services and competition for resources, the Ministry of Health 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. Insecurity in the north limits access to the area so nets are mainly channelled through small, NGO projects.
- 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 centers in all of the districts accessible.
- Main Distribution Channels: NGOs, Community Based Organizations (CBOs), District Health Services Projects (DHSP), medical institutions, boarding schools, universities/colleges, hostels, hotels, military.

*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. A Kampala shopkeeper claimed to be able to have hundreds of nets in stock at their warehouse and so could supply with a couple of days notice. Otherwise, local shops maintain varying quantities of nets and are the main suppliers of nets to the street hawkers.

5.1.2.2 Insecticide

- Insecticide can be made available from distributors through their nationwide agrochemical distribution channels. The individual treatment packages were not available in June but, based on contacts from the MEDA consultant, the K-O Tabs are now in stock at the Joint Medical Stores. Zeneca's ICONET was present as samples but, as yet, unavailable for sale.

- Most insecticide available at a district level is for residual spraying. The Ministry of Health has published a list of approved and available insecticides for ITN use, together with distributors in Kampala.
- Main Distribution Channels: all major farms, district agrochemical depots for local farmers, NGOs, District Health Services Projects (DHSP), medical institutions, military.

5.1.3 Trade Barriers

5.1.3.1 Nets/Netting

Import Duty: 7%

VAT: 17%

*Tax exemption is given to certain NGOs on a case by case basis.

5.1.3.2 Insecticide

- No taxes apply because these are classified under agricultural and public health products.

5.2 Current Market

5.2.1 Local Market

- Uganda has an estimated 1% rate of national net usage and 5% in areas where ITN promotion is integrated in projects (very low).

5.2.1.1 Nets

- Most nets are supplied by traders. Some are imported and some are smuggled.
- Nets are brought in from Tanzania ('Mmbu Net', 'Safi Net'), Kenya ('Mmbu Net'), China ('B-52'), Dubai (infant nets).
- Styles & Sizes available are:
- Conical/Rectangular - Single (US\$ 8,000-12,000/\$12-17); - Double (US\$ 12,000-30,000/\$17-43); - Infant (US\$ 12,000/\$17).
(*Ideal price is considered to be between US\$ 5,000-7,000 for a net or \$7-10.)
- Colours available are: white, light blue, dark blue, purple, dark green, hot pink.
- Most customers are men due to the fact that they traditionally control the finances and make such larger family purchases.
- Nets are visible in Kampala, on the streets (hawkers) and particularly in the main market areas (Kampala Rd., Owino Market, Namirembe Rd., Nakawa, Nakaseru). There are shops which carry large quantities and wide selections of nets. However, overall supplies of nets are small. Public awareness and therefore demand for nets (or ITNs) is still very low but, with some facts on malaria and nets, Ugandans are quick to pick up this concept and try it for themselves.
- Nets are not generally available or easily found outside of Kampala.

5.2.1.2 Insecticide

- Insecticide is difficult to find in Kampala, therefore it is not used.
- 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.
- Customers and shopkeepers are unaware of the ITN concept.

5.2.1.3 ITNs

- Impregnated nets are presently only available through ROMEX Ltd.

5.2.2 NGO Market

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 .

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.

5.2.2.1 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.
- ITNs are subsidized - nets are bought at \$7 (to Kampala) and sold at Ush 8,000 (\$5.55) to Ush 9,000 (\$ 6.25) to community. Retreatment is at cost recovery - USh 200 (\$.14) per dip.
- Nets are imported from Siam Dutch, direct from Thailand.
- Distribution is through Community Health Workers (volunteers) who treat the nets before selling them.
- Insecticide, in both tablet and liquid form, is also from Siam Dutch, therefore it is an AgrEvo product.
- AMREF is exploring the option of having communities make nets.

5.2.2.2 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 (\$6.94 - \$8.33)

and sold at USh 8,000-10,000 (\$5.55 - \$6.94) . Retreatment is USh100 (\$.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
- In Lira, there were several instances of nets being cut up and the pieces hung as curtains

5.2.2.3 Christian Children's Fund

- CCF has 56 child sponsorship and community development projects.
- They have distributed 100 nets this year within Masaka, Mbale, and Lira districts, as part of a MOH project.
- There is funding to implement a pilot project in January 2000, of 3000 nets in six projects.
- A proposal is in with Australian Aid for a larger ITN project.
- ITNs are heavily subsidized. Nets are bought at Ush 12,000 (\$8.33) and sold at about Ush 2000 (\$1.38) . There are plans for a retreatment fee of Ush 1000 (\$.70) per net to be charged.
- Nets are from ROMEX Ltd. and are pre-impregnated.
- ITNs would be distributed to children under five in "enrolled families" (those with a sponsored child) and then to others in the communities.

5.2.2.4 Commercial Marketing Strategies (CMS)

- CMS has funding from USAID for promotion and distribution of ITNs but is looking for funding to buy product.
- Plans are to target rural, low income populations. They have a preliminary list of eight districts.
- CMS has a well established distribution sales force from its present business in reproductive health products.

5.2.2.5 International Committee of the Red Cross (ICRC)

- Red Cross manages projects in Gulu, Kitgum, Kasese, Kabarole, and Bundibugyo districts, with Internally Displaced Populations (IDP) from the Rwenzori Mountains (highlanders with low immunity).
- Nets were explored as an income generation project but this was abandoned as not viable.
- Presently there are plans to do a pilot project in one district (Kasese) - 7000 nets.
- ITNs are to be distributed free; treatment is to be done by community, with a possible charge in future.
- Procurement is centralized from Nairobi but they are exploring nets from JMS and ROMEX Ltd.

5.2.2.6 Joint Medical Stores (JMS)

- JMS was founded by and now supplies non-profit, church organizations (medical and other supplies).
- They began carrying nets this year when approached by the Vestergaard Frandsen representative.
- Warehouse space is provided for Vestergaard's net stocks.
- 1000 nets are in inventory but they also have access to Vestergaard's supplies.
- Medium nets are bought at USh6,100 (\$4.24) and sold at Ush8,300 (\$5.76). Large nets are bought at USh7,900 (\$5.49) and sold at Ush10,000 (\$6.94). (There is a 5% mark-up for customers other than preferred, church/NGO organizations).
- JMS has started carrying insecticide from Zeneca (ICON and ICONET) and just recently ordered K-O Tabs (kits and tabs) from AgrEvo.
- JMS has a wide distribution network through its diverse customer group.

5.2.2.7 Plan International

- Plan has two projects of community-based malaria control in Tororo, Luwero, and Kampala districts.
- The projects are targeted at children and families in the sponsorship program.
- 2000 nets have been distributed so far, with plans to distribute 5000 more this year.
- ITNs are distributed free, with plans to subsidize 60-90% next year.
- Nets are from Vestergaard. Insecticide is from Zeneca but, due to lack of technical knowledge on net treatment, they now have Vestergaard pre-treat the nets.
- In Tororo, Plan is collaborating with COVECO, an organization which 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, Plan bought nets and National Malaria Control Program (NMCP) treated them.

5.2.2.8 World Vision

- WV is working in Kabale district, responding to the present epidemic of highland malaria.
- The World Vision Malaria Control Program is within the long term (15 year) Area Development Program. ITNs are only part of this program.
- The project is targeting a population of 90,000.
- Nets are from a Chinese company in Kampala. 700 nets have been bought so far, with a proposal to order 7000 more.
- Insecticide is from ROMEX (about 20L at USh78,000/L).

- There are concerns that pretreatment be done by experts or properly trained personnel to ensure standards.

5.3 *Marketing*

5.3.1 **Private Companies**

- Companies are primarily marketing nets to NGOs, government organizations, and the DHSP.
- At a community level, the target market is children under five and pregnant women.
- Baseline data is lacking. Some is being compiled by MOH, individuals, and organizations.
- 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 the market, both for nets and insecticide, in the last two years. This is due primarily to the promotion by the MOH (malaria control on the national health agenda), individuals in the NGO community, and international interest.

5.3.2 **National Malaria Control Program (NMCP) (Ministry of Health)**

- NMCP recognizes that the key issue is the promotion and dissemination of information on ITNS.
- The office is in the process of developing and fielding basic ITN information pamphlets at the district level.
- The promotion of ITNS is featured in the national malaria control strategy document.
- Plans are being developed to introduce ITNs to hospitals and schools (World Bank recommendation).
- NMCP is in discussion with Ministry of Finance regarding taxation issues.
- NMCP is in search of funding for a media campaign to promote ITNS.

5.4 *Knowledge of ITNs*

5.4.1 **Public**

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

5.4.2 **Media**

- Uganda Ministry of Health 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's media is impressive.

- Uganda has several very popular radio stations, in both English and local languages. Programming and advertising is particularly creative and informative (ie. call-in health shows focussing on specific topics such as child development, etc.).
- Billboards are highly effective in Kampala - also painted banners at roundabouts.
- Almost all main store buildings are well painted with one or two specific product advertisements. This appears to be an organized system of advertising with specific standards.
- Taxis and matatus (minibuses) are regulated and identified by a blue/yellow/black broken line stripe. Therefore, no advertising is allowed on them.

5.5 Past History of Malaria Prevention

- The most commonly known and used method of malaria control is residual spraying. Such programs are promoted for all major institutions (ie. schools, universities, hospitals, hotels, etc.).
- Other commonly used methods are mosquito coils and insecticide aerosol sprays.

5.5.1 Traditional Methods

- Traditional methods of mosquito control are the burning of herbs or grasses. Also, some projects are exploring the planting of Neem trees as a natural mosquito deterrent.

5.5.2 History of Net Use

- The proportion of households found to have ever used any preventive measures varies between 5% and 55% in various surveys.³

5.6 Demographics

Population of main urban areas:

Kampala	773,463
Jinja	60,979
Mbale	53,634
Entebbe	41,638 (1991 estimates)

Total 929,714 or 4.5% of the total population (20,604,874) (1997)

³Kilian, Dr. Alert. October 1998. "Malaria Control in Uganda: Assessment of the Assignment of the Technical Advisor Malaria Control at the Ministry of Health" and "Progress Report January-September 1998".

6.0 ZAMBIA - Socio-Political

6.1 Introduction

Location: Southern Africa, east of Angola

Land Boundaries: Angola, Democratic Republic of the Congo, Malawi, Mozambique, Namibia, Tanzania, Zimbabwe

Coast: none (landlocked)

Climate: tropical; modified by altitude; rainy season (October-April)

Elevation Extremes:

lowest point: Zambezi River 329 m

highest point: in Mafinga Hills 2,301 m

Terrain: plains along the coast; central plateau; highlands in north, south

Environment - current issues: air pollution and resulting acid rain in the mineral extraction and refining region; poaching seriously threatens rhinoceros and elephant populations; deforestation; soil erosion; desertification; lack of adequate water treatment presents human health risks

6.2 Political

6.2.1 Government

Independence: October 24, 1964

Type of Government: republic

National Capital: Lusaka

Other major towns: Ndola and Kitwe

Administrative Divisions: 9 provinces; Central, Copperbelt, Eastern, Luapula, Lusaka, Northern, North-Western, Southern, Western

Constitution: August 2, 1991

Executive Branch:

chief of state: President Frederick CHILUBA (since October 31, 1991); Vice President Christon TEMBO (since December 1997)

head of government: President Frederick CHILUBA (since October 31, 1991); Vice President Christon TEMBO (since December 1997); the president is both chief of state

and head of government

cabinet: Cabinet appointed by the president from among the members of the National Assembly

elections: president elected by popular vote for five-year terms; election last held November 18, 1996 (next to be held October 2001); vice president appointed by the president

Legislative Branch: unicameral National Assembly (150 seats; members are elected by popular vote to serve five-year terms)

elections: last held November 18, 1996 (next to be held October 2001)

Political Parties: Agenda for Zambia (AZ), Labor Party (LP), Liberal Progressive Front (LPF), Movement for Democratic Process (MDP), Movement for Multiparty Democracy (MMD), National Lima Party (NLP), National Party (NP), United Independence Party (UNIP), Zambia Democratic Congress (ZADECO)

6.2.2 Present Conflict/Instability

Quadripoint with Botswana, Namibia, and Zimbabwe is in disagreement; Democratic Republic of Congo-Tanzania-Zambia tri-point in Lake Tanganyika may no longer be indefinite since it has been informally reported that the indefinite section of the Democratic Republic of Congo-Zambia boundary has been settled.

Border areas are the recipients of large numbers of refugees from surrounding countries in turmoil (Angola, DRC, Mozambique).

6.3 Economy

Overview:

Despite progress in privatization and budgetary reform, Zambia's economy has a long way to go. Inflation, while slowing somewhat, continues to be a major concern to the Chiluba government. Zambia's copper mining sector, which accounts for over 80% of the nation's foreign currency intake, is struggling. Production rates are down as are world copper prices. Aid cuts by Zambia's donors, arising out of concern for the November 1996 flawed election, will severely damage Zambia's economic prospects. Urged by the World Bank, Zambia has embarked on a privatization program which is to include the all-important copper industry.

6.3.1 General Statistics

Population	9,460,736 (July 1998 est.)
Population Growth Rate	2.13 % (1998 est.)

Age Structure:	<i>0-14 years: 49%</i> <i>15-64 years: 48%</i> <i>65 years and over: 3%</i>
Infant Mortality Rate	92.57 deaths/1000 live births (1998 est.)
Life Expectancy at Birth	<i>male: 36.81 years</i> <i>female: 37.33 years (1998 est.)</i>
Total Fertility Rate	6.41 children born/woman (1998 est.)
Literacy Rate	<i>total population: 78.2 %</i> <i>male: 85.6 %</i> <i>female: 71.3 (1995 est.)</i>
Languages	English (official), Bemba, Kaonde, Lozi, Lunda, Luvale, Nyanja, Tonga, about 70 others

6.3.2 Economic Indicators

GDP (\$US million)	3,557 (1997)
GDP growth (%)	3.5 (1997)
GDP/head (\$US)	486 (1996)
Inflation (%)	26.3 (July 1998)
Unemployment Rate (%)	22

Budget	<i>revenues: \$888 million</i> <i>expenditures: \$835 million, including capital expenditures of \$110 million (1995 est.)</i>
Foreign Debt (US\$ billion)	7.1 (1998)

Currency	1 Zambian Kwacha (ZK) = 100 ngwee
Exchange Rate (official): Zambian Kwacha (ZK) per US\$1	2010.0 (Sept. 1998)

Main Exports	Copper, Cobalt, Zinc
Main Economic Activities	Mining, Agriculture

6.3.3 Industries & Natural Resources

Industries: copper mining and processing, construction, foodstuffs, beverages,

chemicals, textiles, fertilizers

Natural Resources: copper, cobalt, zinc, lead, coal, emeralds, gold, silver, uranium, hydro-power potential

Agriculture – products: corn, sorghum, rice, peanuts, sunflower seed, tobacco, cotton, sugarcane, cassava; cattle, goats, pigs, poultry, beef, pork, poultry meat, milk, eggs, hides

6.3.4 Trade

Exports

total value: \$975 million (f.o.b., 1996 est.)

commodities: copper, zinc, cobalt, lead, tobacco

partners: EU countries, Japan, South Africa, USA, Saudi Arabia, India, Thailand, Malaysia

Imports

total value: \$909 million (f.o.b., 1996 est.)

commodities: machinery, transportation equipment, foodstuffs, fuels, petroleum products, electricity, miscellaneous manufactured goods

partners: South Africa, EU countries, Japan, Saudi Arabia, USA

7.0 ITN MARKET IN ZAMBIA

The Zambian economy has been in a decline in recent years as the government implements various reforms and liberalization policies. Disposable incomes are extremely low and, in some rural areas, during part of the year, barter systems are the main form of exchange. However, the realities of malaria, as the number one cause of death, create a receptive audience for any promotion of effective preventions, such as ITNs.

In the ITN sector, there is much potential but little at present being done. ITN projects are relatively small and focussed only in certain sections of the country. There is no large scale distribution or promotion of ITNs, or even of nets. Although the Zambian population is much smaller (9 million) than many surrounding countries, a large percentage of this population is found in urban areas and is therefore easily accessible as a market and as a channel into rural areas.

The implementation of health sector reforms, in the last few years, has strained the human and financial resources available in the Ministry of Health. Malaria prevention is a priority but, as in many countries, it is promoted as part of an integrated approach to health care. There are a few select partnerships between the ministry and specific NGO projects. Thus, overall awareness of ITNs is relatively low and there is room for a large scale commercial effort in promoting and distributing ITNs.

7.1 Supply Issues

7.1.1 Production

7.1.1.1 Nets

- The only formal manufacturing undertaken in-country is by Ndola Weaving Textiles Ltd. but the scale is very limited.
- Importation of nets is from:
 - Zimbabwe - Emnet Ltd.
 - South Africa - Chemdol South Africa, (netting fabric is from Ninian and Lester, and is then sewn to Chemdol's specifications by another contracted company).
 - Taiwan - Siam Dutch (in partnership with AgrEvo);
 - Tanzania (smuggled)- Sunflag Ltd., A to Z Textiles Ltd.
- Distribution is by:
 - Chemdol Ltd. - 'Global Nets and Netting',
 - 'ImpregNET' (net/K-O Tab)
 - EcoMed Ltd. (K-O Net)
 - MacMed Ltd. (assorted)
 - Sangiene Ltd. (assorted)
 - Local Shops ('Mmbu' nets, 'Deluxe Mosquito Net')
- Netting is sometimes imported and nets assembled. Chemdol has a long term plan to try to do this.
- Some NGOs are considering net sewing as a form of income generation.
- Wholesale Nets are generally available as follows:
 - Colours: white and green (more expensive).
 - Sizes and Prices:
 - Rectangular- single (K30,000/\$12); 3/4 (K25,000-37,500 /\$10-15); double (K38,448/\$12-15).
 - Conical - 3/4 (K25,000-K52,752/\$10-17); double (K20,000-K58,466/\$8-20).
 - Special nets - king (K2,110-K137,964/\$13-45); queen (K110,371/\$36); infant (K93,509/\$30)

7.1.1.2 Insecticide

- Manufacturing in-country is done by: MacMed Ltd. which produces 'Mosqpel' (Permethrin 25%)
(There was no manufacturing at the time of interview. They were unable to supply sufficient quantities for their distributor, Sangiene Ltd.)
- Importation is from:
 - South Africa, Zimbabwe
 - Scotland (Focus Development Lab Ltd.)
- Distribution is by:
 - Chemdol Ltd. (Zeneca Ltd.- 'ICON CS', 'ICONET' (not yet in market),
 - AgrEvo Ltd. - (K-O Tab),

- Focus Development Lab Ltd. ('Gleneagles Healthcare', 'Permecote'),
 - Cyanamid Ltd. ('FENDONA' - *no individual treatment pkg available);
 - EcoMed Ltd. (AgrEvo Ltd.- 'K-O Tab', 'K-Othrine Moustiquaire'),
 - MacMed Ltd. ('Mosqpel'),
 - Sangiene Ltd. (MacMed Ltd. - 'Mosqpel')
- Product prices are as follows:
 - K-O Tab - \$1.25-\$2.96 (when part of 'K-O Net Kit' - \$1.65),
 - K-Othrine - \$32.50/L
(price reduction for NGOs ordering larger volumes)
 - FENDONA - \$7.94/quarter litre, \$28.76/L
 - Permethrin - 'Gleneagles Healthcare' - \$2.17/10ml
 - 'Permecote'
 - Mosqpel' - 1.20/sachet

7.1.2 Distribution/Logistics

7.1.2.1 Nets

- Main regions where nets are presently distributed (either directly supplied by main distributors or through NGOs) are Lusaka, Eastern, Copperbelt, Luapula.
- All main urban centers in all regions/provinces are accessible by road. Road infrastructure, though poor in some areas, is generally in reasonable condition and allows for overland transportation of goods. Most main routes are tar roads although the quality of the road and the number of potholes varies.
- Main Distribution Channels include NGOs, military, Zambian Consolidated Copper Mines (ZCCM), boarding schools, medical institutions, District Health Management Boards (DHMB), large companies with employee-based credit programs (ie. Nakambala Sugar Estate, Clark Cotton), expatriate (upscale market) and safari camps.
- Most distributors are targeting larger customers and not the individual. Also, most do not supply the local shops or hawkers as these tend to get nets from traders smuggling across the Tanzania and Malawi borders. The exception is South African chain grocery stores (ie:Shoprite) which bring in nets from South Africa.

7.1.3 Insecticide

- Insecticide can be made available from distributors through their nationwide agrochemical distribution channels. However, the individual treatment packages are not presently available except when specifically ordered with nets. Most insecticide available at a district level is for residual spraying.
- Main Distribution Channels: all major farms, district agrochemical depots for

local farmers, ZCCM (through employee public health programs), etc.

7.1.4 Trade Barriers

Nets/Netting & Insecticide:

Import Tax: 15%

VAT: 17.5%

Pre-treated nets or kits of net and treatment: VAT free

7.2 Current Market

7.2.1 Local Market

- Zambia has an estimated 1-5% rate of national net coverage (very low).
- Supplies of nets are small and generally inadequate. However, awareness and therefore demand at present is also very low. Nets are not evident in the general market. Some hawkers are seen in Lusaka and in very rural areas. Otherwise nets are found in a very few, specific shops (often owned by Asians) in urban centers.
- In Lusaka, nets are found in the 'Second Class Trading' district and on Freedom Way. They are not generally available in the township areas.
- Shops in Chipata, Eastern Province, claim to have been adversely affected by the subsidized sale of nets through the SFH 'Power Net' project.

7.2.1.1 Nets

- Most nets are supplied by traders, smuggling them in from Tanzania ('Mmbu Nets'). These Tanzanian nets are considered low quality.
- A few nets were found supplied by Ndola Weaving Textiles Ltd. These nets are said to be of better quality but supplies are low and seasonal.
- Styles & sizes available are: Conical - Single, 3/4, double.
- White is the only colour available.
- Net prices range from K15,000-K25,000 (\$6-10).
- Most customers are men, due to the fact that they traditionally control the finances and make such larger family purchases.

7.2.1.2 Insecticide

- Insecticide is unavailable, unless it is found through agrochemical suppliers and outlets.
- Customers and shopkeepers are unaware of the ITN concept.

7.2.1.3 ITNs

- Impregnated nets are available through Chemdol, upon request.

7.2.2 NGO Market

7.2.2.1 CARE

- CARE manages a 2 year, 'Infant and Child Mortality Reduction Project (ICMRP), in Lusaka (8 compounds) and Ndola (6 compounds).

- Expansion will be dependant on funding.
- 400 nets were procured from the NMCC for free (supplies were limited so they are still sourcing 1600).
- ICON was also free from the NMCC (In future, CARE will source nets from elsewhere and buy insecticide locally).
- Nets are sold at: K10,000 (\$4), K13,000 (\$5.20) (if already treated).
- The target market is: children under 5 years, pregnant women.
- Sales are subsidized to target households in project areas.
- Distribution is through community groups, with individuals trained to educate, sell, and retreat.
- Each project establishes a revolving fund.
- Communal dipping is planned for re-treatment.

7.2.2.2 Churches Medical Association of Zambia (CMAZ)

- Distribution channels are nationwide, through mission hospitals and clinics.
- Baseline surveys were performed in three pilot health institutions before introducing ITNs.
- Over 6200 nets were treated and distributed in three pilot and a few other interested institutions.
- 16 institutions have bought nets to date.
- Sales are subsidized through funding from NORAD. CMAZ recognizes the need to decrease the subsidy.
- Nets are bought at K26,000/\$10.40 (Zimbabwe), K16,000/\$6.40 (Tanzania).
- Nets are sold at <50% of cost (K5000/\$2, K3000/1.20).
- Nets (singles/doubles) are from Emnet (Zimbabwe) and Tanzania (bought through a local agent).
- White, conical net are used. People prefer green but it is more expensive.
- Insecticide is bought locally from MacMed: deltamethrin - 40 containers at K56,000/L, 500 sachets at K4,500/15ml. (Nets are treated at a cost of \$.18/net).
- Pretreatment becomes a key issue.
- A demand has been created which cannot presently be supplied.

7.2.2.3 National Malaria Control Centre (NMCC)

- Nets (white conical) are sold at K15,000 (\$6) untreated, and K20,000 (\$8) treated.
- Distribution targets both individuals and groups.
- Nets are sold from NMCC office at Chainama Hospital grounds.
- There is recognition of the need for ongoing awareness raising/sensitization.

7.2.2.4 Society for Family Health (SFH/PSI)

- SFH manages a 2 year, social marketing project of ITNs. This is being implemented through a newly established organization called Eastern

Province Integrated Malaria Initiative (EPIMI), which is a joint venture between SFH, BASICS Project, and the NMCC.

- The project is in 3 districts in Eastern Province (Chipata, Chama, Lundazi).
- The product is branded as 'PowerNET' and 'PowerCHEM'. It includes a net with a K-O tab and instructions in a plastic, resealable bag to be used for actual treatment process.
- The target was an initial supply of 20,000 nets (and \$80,000 funding for advertising and promotion). 2,238 nets were sold in first four months of project.
- Nets are from Chemdol (Global Manufacturing, S.A.), bought for \$4.05-4.45, sold for K9000/\$3.60, then resold by community sales agents at K10,000/\$4 and by a few commercial outlets at K12,000/\$4.80.
- Green, rectangular nets are supplied in double (150x180x150) and family (190x180x150) sizes.
- K-O tab is procured from Chemdol at \$.80/tab.
- The project is presently targeting the lower end of the market, lower income levels.
- Multiple net usage is being promoted for households so adults and children are covered.
- Distribution is through Neighbourhood Health Committees, Agricultural Extension Officers, Kamoto Hospital, and commercial channels.
- Plans are being made to launch a similar project in the Copperbelt Province (Kitwe/Ndola), primarily using commercial channels to cover 90% of the district.
- PSI anticipates being involved in a JICA funded project of 100,000 nets and 145,000 packages of insecticide, with funding for promotion, distribution, and marketing of ITNs.

7.2.2.5 UNICEF

- UNICEF manages a 'Community Based Malaria Prevention and Control Project' (CBMPCP), which is being implemented by the District Health Management Teams (DHNT) in Luapula Province.
- A pilot project was carried out in Samfya district (1995-1997) and obtained 60% household coverage.
- Baseline surveys are being compiled.
- 44,000 nets were procured this year; 10,000 nets for the pilot phase.
- Nets were bought at \$3-5 from Chemdol (South Africa) and procurement was through the UNICEF South Africa office.
- White nets were used in the pilot while green, rectangular nets are preferred for the project.
- Sizes used are: double (K11,000/\$4.60), family (K12,000/\$5), extra family (K13,500/\$5.63).
- Insecticide used is: ICON at \$40/500ml (\$.60/net, 1500 nets per unit).

- ITNs are subsidized at cost. The price includes the insecticide treatment.
- The project uses the model of a revolving fund (but makes the point that, due to inflation, this is only successful if there is a US dollar account).
- There are plans for UNICEF to collaborate with NMCC and the Central Board of Health to scale up malaria control in the province, and possibly to expand into Northern Province if funding becomes available.
- Other partnerships are with Food and Agriculture Organization (FOA), with the Japanese International Cooperation Agency (JICA), and with the USAID-funded Zambia Integrated Health Project (ZIHP) in all areas of malaria prevention and control.
- Emphasis is put on the training of DHMT staff, community health workers, and volunteers on Neighbourhood Health Committees (NHCs) and malaria control sub-committees.

7.3 Marketing

7.3.1 Companies

- Chemdol - places ads in the 'Lusaka Lowdown', a monthly periodical read by all expatriates.
- EcoMed - has created advertising jingles for K-O Tab Launch (Kenya, Zimbabwe, Zambia).
- has plans for advertising in local newspapers and other media.
- MALVEC - is a private company contracted by AgrEvo to build the ITN business through EcoMed, in Zambia and the region.
- UNICEF - is making efforts to develop IEC materials and already has T-shirts for Health Centre staff with slogans of "Sleep Under Nets - All The Time", "Protect Your Family From Malaria - Especially Small Children and Pregnant Women" in the local language.
- Promotion is done through volunteer community agents through the use of traditional communication methods.
- Drama groups are highly effective and are commonly used forms of communication.
- PSI also uses PA systems on vehicles.
- Clark Cotton Zambia (CCZ) has an innovative and unsubsidized ITN project covering most parts of Eastern Province with a potential customer base of 45,000 cotton farmers. CCZ sells a package of a K-O net and K-O tab, on a credit scheme. Nets sell for K28,000/\$11.66 - K42,000/17.50 (single and double size) and the individual tabs for K4000. There was an initial supply of 20,000 nets. They plan to import and sell another 10,000 nets in 1999.

7.3.2 Ministry of Health

- Central Board of Health uses the radio for health programs, some of which have focussed on malaria control.
- A major issue is that the ministry wants higher net coverage nationally.

- The NMCC is at the stage of awareness building
- The NMCC has assisted certain companies (ie. Clark Cotton) to import nets duty free.
- Several meetings have been held to discuss which Information, Education, and Communication (IEC) materials need to be produced.
- Funding is necessary for any promotion activities.

7.4 Knowledge of ITNs

7.4.1 Public

- Awareness of ITNs is limited to ITN project areas (ie. Eastern Province).
- Otherwise, there is latent, low level public awareness of the benefits of nets.
- There is virtually no public awareness of ITNs.

7.4.2 Media

- No knowledge of ITNs exists in the media.
- Media (newspapers, radio, TV) has been used in a limited way for general malaria control methods (Central Board of Health). There has been some advertising of products but this has been very limited due to the expense.

7.5 Past History of Malaria Prevention

Commonly known and used methods of malaria control are the residual spraying programs and the use of medications such as chloroquine (although much of the malaria in Zambia is chloroquine resistant).

7.5.1 Traditional Methods

- Traditional methods of mosquito control include burning grass/dung/specific local herbs/blue gum eucalyptus leaves.

7.5.2 History of Net Use

- Zambia does not have a net culture.
- Net ownership is low but is among the most common methods of prevention used.
- There is a preference for double size nets. Coloured nets are preferred in rural areas but are generally unavailable and more expensive.

7.6 Demographics

Population of main urban areas:

Lusaka	1,327,311 (1995)
Ndola	376,207 (1990)
Kitwe	38,207 (1990)
Mufulira	152,944 (1990)

Total 2,194,462 or 23.68% of total population (9,265,017) (1997)