



NETMARK REGIONAL AFRICA PROGRAM BRIEFING BOOK

Insecticide Treated Materials
in

SENEGAL

September 2000



ABBREVIATIONS

| | |
|---------------------|--|
| <i>A.arabiensis</i> | <i>Anopheles arabiensis</i> |
| <i>A.funestus</i> | <i>Anopheles funestus</i> |
| <i>A.melas</i> | <i>Anopheles melas</i> |
| AFRO | Africa Regional Office (World Health Organization) |
| AMREF | African Medical Research Foundation |
| c.i.f. | Customs, insurance and freight |
| CFAF | Communaute Financiere Africaine Franc |
| CS | Capsule Suspension |
| <i>Culex sp.</i> | <i>Culex</i> Species |
| EW | Emulsion in Water |
| f.o.b. | Freight on board |
| GDP | Gross Development Product |
| GNP | Gross National Product |
| ITNs | Insecticide Treated Nets (and materials) |
| KAP | Knowledge Attitudes and Practices |
| '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 |
| SC | Suspension Concentrate |
| UNICEF | United Nations Children's Fund |
| USAID | United States Agency for International Development |
| WHO | World Health Organization |

SUMMARY

Senegal had an estimated population of 8.8 million in 1998. The annual growth in GDP for the period 1999-2003 is expected to be 6.1% and the growth in the GNP per capita to be 3.4%. Real growths in GDP have been achieved in 1996 and 1997. Senegal has a promising economy with rising investments and a low inflation rate.

Malaria is endemic throughout the country accounting for 30% of all outpatient attendance. The National Malaria Control Programme outlines insecticide treated nets (ITNs) as a key strategy for malaria control. Several qualitative and quantitative surveys for ITNs have been carried out recently. Presently the national household net coverage is estimated at about 30%. There is no local manufacturer of nets and they are not readily available on the market (availability is limited to the rainy season when mosquitoes are more abundant). Coils and aerosols are common methods of mosquito control.

The National Malaria Control Programme has 50 centers for ITN treatment in operation or planned with subsidized nets and treatments.

The estimated total sales for nets over five years are at least 1,431,450 and for insecticide treatment is 1,860,885 (not taking population growth into account).

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SENEGAL

Map 1: General position of Senegal



1. BACKGROUND

1.1 Demographic Information ¹

Table 1: Demographic information

| | |
|---|-------|
| Population (<i>mid-1998-millions</i>) | 8.8 |
| Average annual growth rate (<i>1992-1998</i>) | 2.7 |
| Number of Households (<i>1,000s</i>) | 777.2 |
| Average household size | 11 |
| Age distribution <15 years % | 48 |
| Male/Female Ratio (<i>1988</i>) | 0.95 |
| Urban population (<i>% of total population</i>) | 40 |
| Life expectancy at birth (<i>years</i>) | 52 |
| Infant mortality (<i>per 1,000 live births</i>) | 68 |
| Total Fertility Rate (<i>1998 est.</i>) | 6.18 |
| Illiteracy (<i>% of population age 15+</i>) | 67 |

Table 2: Population breakdown by region and ethnic group

| Population breakdown by Region (%) | |
|--|----|
| Dakar | 24 |
| Diourbel | 9 |
| Kaolack | 11 |
| Saint Louis | 9 |
| Fatick | 7 |
| Kolda | 8 |
| Louga | 6 |
| Thies | 13 |
| Tamba | 5 |
| Ziguinchor | 5 |
| Population breakdown by main Ethnic Groups (%) | |
| Wolof | 43 |
| Pulars | 23 |
| Serere | 15 |
| Diolas and Mandingues | 10 |
| Others | 9 |

The official language is French. Other languages include Wolof, Pulaar, Diola and Mandingo.

1.2 Geography and Climate

Senegal is located in Western Africa bordering the North Atlantic Ocean. It borders Mauritania to the north, Mali to the east, Guinea and Guinea Bissau to the south and the Gambia to the west. The terrain is generally low with rolling plains rising to foothills in the southeast. The capital city is Dakar and it has 10 administrative regions; Dakar, Diourbel, Fatick, Kaolack, Kolda, Louga, Saint-Louis, Tambacounda, Thies and Ziguinchor.

The climate of Senegal is tropical, hot, and humid. The rainy season (May-November) has strong southeast winds. The dry season (December to April) is dominated by hot, dry, harmattan wind. Yearly temperature and rainfall variations are shown for several sites in Map 2 below.

There are three broad eco-climatic zones which influence the transmission of malaria:

La zone cotiere Nord: (Dakar and Saint-Louis). This is characterized by low rainfall throughout the year. However, surface water in the region of St Louis due to the construction of the dam on the Senegal river represents an important malaria factor.

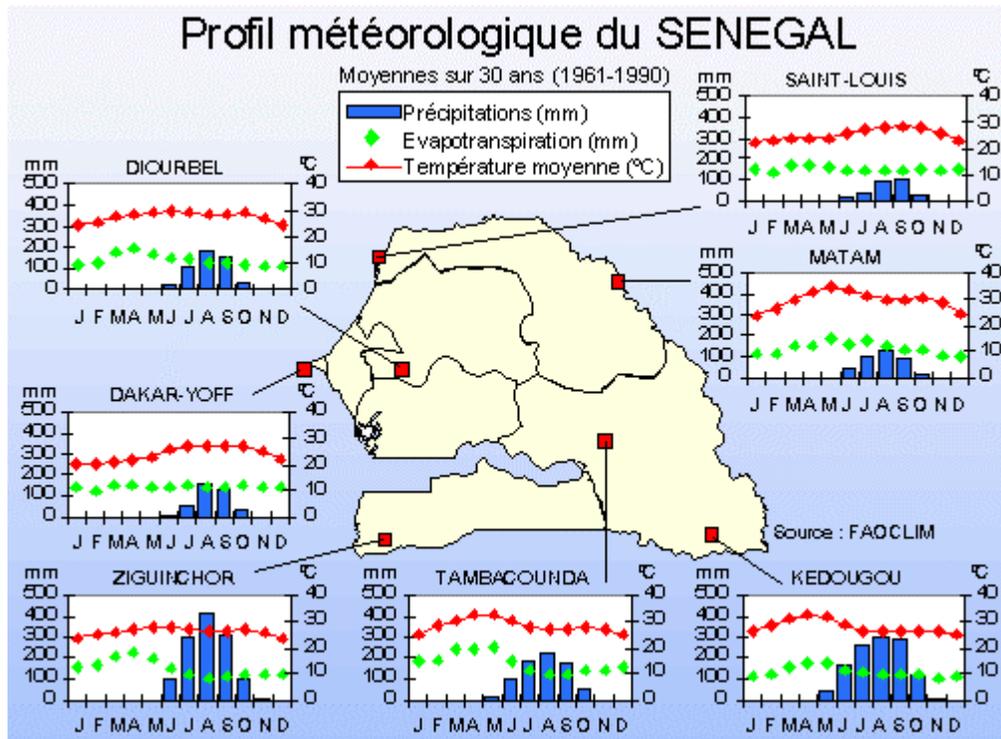
La zone Sahelienne: This is characterized by 9-10 months of dry season and 1-2 months of rainy season. Temperatures are high throughout the year.

La zone Soudanienne-Nord:

Zone Soudanienne Nord: This is characterized by 3-4 months of irregular rainfall and 6-8 months of dry season. Temperatures vary throughout the day.

Zone Soudano-Guineenne: Characterized by 4-6 months of regular rainfall

Map 2: Meteorological profile of several sites in Senegal²



1.3 Economy³

In 1994, Senegal undertook an economic reform program with the support of the international donor community. This began with a 50% devaluation of Senegal's currency, the CFA franc, which is at a fixed rate to the French franc. Government price controls and subsidies have been steadily dismantled. Real growths in the GDP of 5.6% in 1996 and 4.7% in 1997 have been achieved as a result of the reforms. Annual inflation has been pushed below 3% and investment has been steadily rising from 13.8% of GDP in 1993 to 16.5% in 1997, however unemployment is still high.

1.3.1 Basic economic indicators

Table 3: Basic economic indicators

| | |
|--|-----|
| GNP per capita (\$) | 530 |
| Poverty (% pop below poverty line) | 33 |
| GDP (1998-US \$ billions) | 4.8 |
| Average annual growth in GDP (1999-03 projection) | 6.1 |
| Average annual growth in GNP per capita (1999-03 projection) | 3.4 |
| Net ODA from all donors (US\$ millions-1996) | 582 |
| Inflation (1998 est. %) | 5.7 |
| GDP real growth (1998 est. %) | 5.7 |
| Exchange rate: CFA francs per US\$1 (May 2000) ⁴ | 720 |

1.3.2 Exports

Commodities:

Fish, groundnuts (peanuts), petroleum products, phosphates, cotton, horticulture

Total value:

US\$925 million (*f.o.b.*, 1998)

1.3.3 Imports

Total value: US\$1.2 billion (*f.o.b.*, 1998)

1.3.4 Budget

Revenue: US\$885 million

Expenditure: US\$885 million

1.3.5 Industries

Agricultural and fish processing, phosphate mining, fertilizer production, petroleum refining and construction materials.

1.4 Political stability

There is conflict over the independence of Casamance, the Southern part of Senegal separated from the rest of the country by the river and Gambia. This was originally between the Mouvement des Forces Democratiques de Casamance (MFDC) and the Senegalese government but now involving various faction groups and affecting the surrounding countries (The Gambia, Mauritania, and Guinea-Bissau). The short section of boundary dispute with the Gambia is indefinite.

1.5 Transportation

Railways: 904 km

Highways: 14,576 km

Ports and harbors: Dakar, Kaolack, Matam, Podor, Richard-Toll, Saint-Louis and Ziguinchor.

Airports: 10

2. MALARIA SITUATION

2.1 *Epidemiology and Entomology*

2.1.1 Burden

Malaria is the main cause of mortality and morbidity in Senegal, it is responsible for approximately 10% of all inpatient admissions and 30% of all outpatient attendance. It accounts for approximately 20% of total morbidity in Senegal, being 36% in Fatick, 31.4% in Kaolack and 7-7.5% in Saint-Louis and Dakar. *Plasmodium falciparum* is responsible for 90% of all malaria infections in the country. Clinical malaria prevalence is thought to be 1.36% countywide and it is responsible for 36% of school absenteeism. The direct and indirect costs due to malaria were estimated as more than US\$800,000 in 1987 and US\$1,800 in 1995.

2.1.2 Endemicity

Malaria is endemic in Senegal throughout most of the year, although there is less risk in January through to June in the Central and Western Regions. Transmission of malaria is seasonal and corresponds to the rainy season. Rainfall increases moving south.

Total population in Senegal at risk of stable endemic malaria: 1,441,277

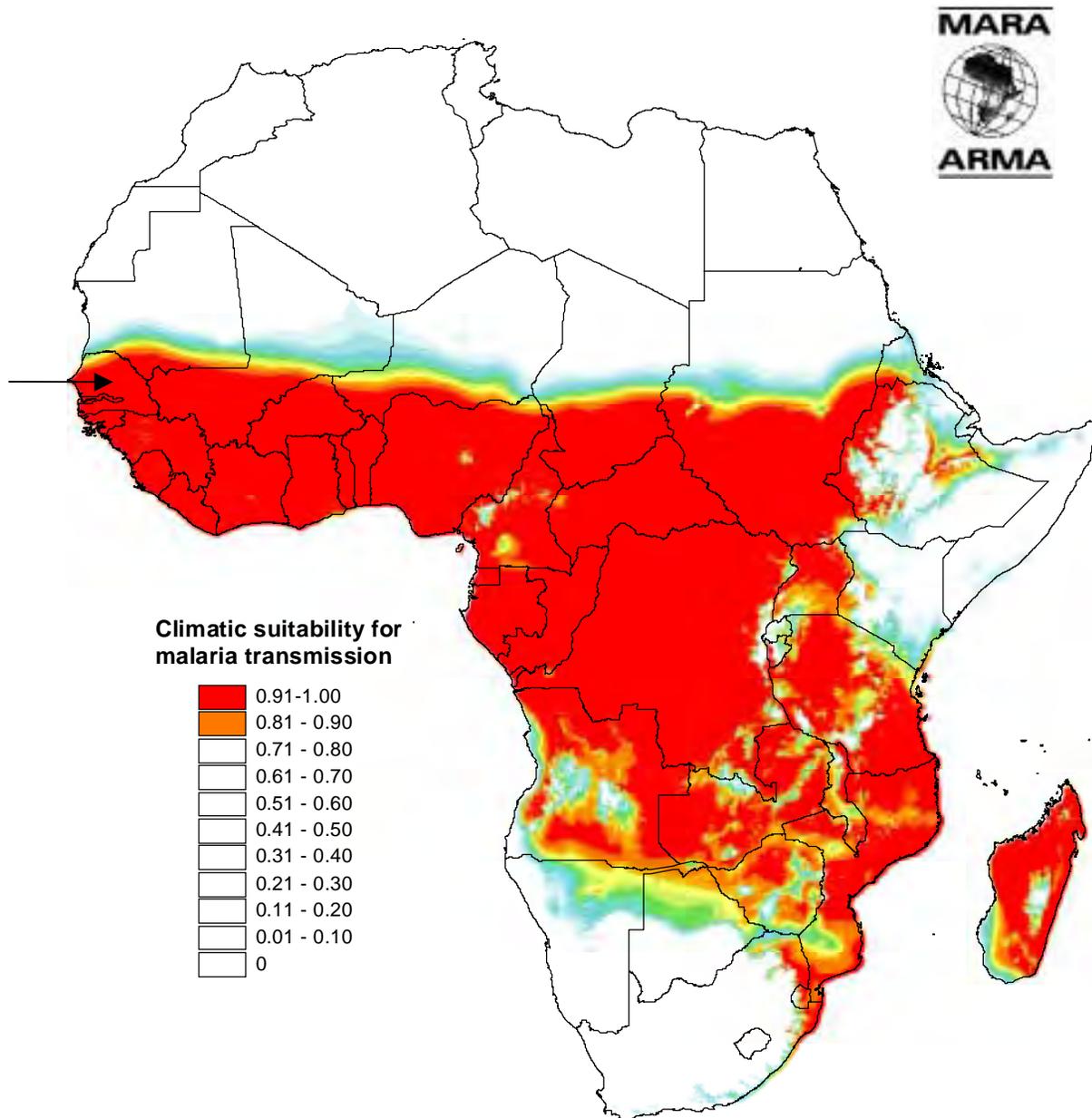
2.1.3. Seasonality

According to the National Programme, malaria is endemic all year round in the St Louis and Kaolack regions, due to availability of surface water. It prevails during the rainy season in all parts of the country, most notably in the Casamance region where the rains begin in May until November.

2.1.4 Vectors and their behaviors

Anopheles gambiae s.s. is responsible for much of the transmission in the south, *An. arabiensis* in the central region and *An. funestus* in the north. *An. arabiensis* is the principal vector. *An. melas* is found in the coastal regions and is a very efficient malaria vector. Vector density is higher in irrigated regions.

Map 3: Climatic suitability for the transmission of stable malaria in Africa ⁵



The map illustrates climatic suitability for stable malaria transmission in Africa. Red areas have a high probability of malaria transmission as predicted by climate. The arrow indicates the position of Senegal illustrating that most of the country is at risk of stable transmission.

2.1.5 Local resistance to pyrethroid insecticides

A study of pyrethroid resistance in several West, Central and Southern African countries found that vector populations in Senegal were susceptible to pyrethroids ⁶.

2.2 Malaria control

2.2.1 Government control policies and strategies, including the place of ITNs

Co-ordination of malaria programs is done mainly through the National Service Department for Large Epidemics at the Ministry of Health. Malaria control and insecticide treated mosquito nets are on the agenda of the Ministry of Health of the government of Senegal. The government, including the President's office, is committed to fighting malaria and are willing to support initiatives taken in this direction. One of the objectives of the Plan of Action 1996-2000 is to increase coverage of ITNs in the regions of Dakar, Saint Louis, Louga, Thies, Diourbel and Kaolack, to 50% of the population by the end of December 1999 ⁷.

Following the recent summit meeting in Abuja in April 2000, in which the Minister of Health participated, the critical issue of excise duty on imported nets and insecticides was raised. The Minister is planning to sensitize all relevant colleagues to this potential barrier to ITN accessibility and use. A technical file is being prepared by Projet de Lutte Contre les Maladies Endemiques (PLCME) where material for nets or at least finished ITNs will be exempted from custom duties. A solid argument on the toll of malaria is being prepared.

2.2.2 Major actors

2.2.2.1 Donors

The PLCME is responsible for malaria programs at the MOH. It has received funding from IDA, the World Bank Africa branch since 1997. Funding is \$ 14.9 million for 5 years. Other major donors of funds for malaria control activities include WHO and UNICEF. The World Bank were carrying out market surveys, in collaboration with Aventis, but this programme is presently delayed.

2.2.2.2 NGOs

NGOs involved in malaria control activities include Plan International, World Vision, and the European Development fund (Luxembourg).

2.2.3 Past and current programs

2.2.3.1 Free or subsidized ITNs

The three main components of the PLCME malaria control strategy include:

- IEC - guides for health workers have been developed for malaria and bilharzia.
- Training - an ongoing decentralized activity.
- ITNs – a hybrid system where the private sector produces and supply the nets and the government runs the treatment/ re-treatment through the *Brigades Regionales d'Hygiene*. The plan envisions the distribution of 150 000 nets and 18 000 liters of deltamethrin.

UNICEF has been involved since September 1997 in an ITN intervention in the three districts of Fatick, Kaolack and Dioffor. The specific objectives of this intervention are the creation of 30 re-treatment centers, raising of the demand for ITNs, correct case management of malaria by the health staff, and promotion of malaria prevention through community organizations. A training program involving all health staff upgraded their case management skills in the prevention and treatment of malaria cases. Supply of material included 15 000 bed nets, 190 liters of K-Othrine, and the distribution of 190 kits including buckets, measuring cups, gloves, and protective eye wear. Women's groups and youth organizations were mobilized on preventative measures for malaria. Promotional items such as t-shirts, hats, posters and leaflets were distributed. Education messages were transmitted through short TV spots and a 26 minute films projected through a mobile cinema unit that visited 119 villages. Group discussions helped follow up on the topic of malaria and allowed the community and the health staff to interact.

Senegal has 50 centers where ITN treatment; production and/or net distribution occurs or is planned. These centers are located in 12 districts under the control of the Ministry of Health as was planned in 1997. The capital city, Dakar and the surrounding areas for instance, are serviced by the districts of M'Bao and Pikine, both located at 50 to 100 km from Dakar. Various IEC activities are carried out. The nets are being sold at subsidized prices. BASICS has some involvement in the programs through contact with the MOH.

Plan International recently received a grant from USAID/BHR/PVC for a four-year Child Survival project to be implemented in the two sub-districts of Wacngouna in Nicoro, Kaolack and Sakal in Lounga from September 30th 1998 to September 29th 2002. These areas were chosen because of their health needs and because of Plan International important establishment and community development experience. Malaria is one of the five child survival activities that the project proposal has targeted.

In 1994, World Vision initiated a community –based intervention in the area of Saint Louis, to encourage the use of ITNs. It bought net material, tailored and treated it with insecticide at a unit cost of CFA 10,000 but sold it to the community at a subsidised price of CFA 1,000 only. Activities included interpersonal communication to educate on malaria protection (not only personal protection which was a well perceived benefit). Demand for ITNs began to increase. At this time World Vision then raised the contribution to CFA 2,500. A short survey showed a positive impact: less children were dying. World Vision transferred more responsibility to the community through the purchase of materials, in tailoring, dipping, distribution and sales. The communities were then requested to organise a cost –recovery system to purchase, treat and distribute ITNs. World Vision still provides the insecticide free. The treated mosquito net is now sold at CFA 5,000 to the members of the community. Cost of re-treatment is CFA 300 – 500. Funds (from crops) are available after the rainy season.

The European Development Fund (Luxembourg) has been actively involved in the supply and promotion of community –based ITN in the region of Saint Louis.

More NGOs suggest that they are considering ITN programming once there is sufficient supply and demand.

The NGOs sell ITNs at subsidized prices of \$4.25-\$5.00 or CFA 2,500-3,000, targeting rural areas and or low income sectors (e.g. women). However, even with subsidized prices, some community members are unable to pay the full amount and consequently an installment facility has been created.

The Japanese government are considering donating 15,000 Olyset nets and 200,000 treatment kits to the government of Senegal.

2.2.3.2 Commercial enterprise

The MoH conducted two studies in November 1998 and March 1999, that focussed on market research and a plan of action for marketing ITNs. The MoH received funding from WHO of \$332,505 for an ITN market study, and an ITN marketing plan. The MoH is looking for ways to implement the plan of action proposed. However, no generic public awareness for ITNs has been carried out yet. The government is planning to launch an ITN campaign but would prefer a high input from the private sector.

3. CONSUMER MARKET FOR ITNs

3.1 Policy context

3.1.1 Policies on taxation and tariffs

Nets - Duty 42% and VAT 20% ⁸

Insecticide - Duty: 26% for bulk and 47% for finished individual units and VAT 20% ⁹

The Ministry of Finance does not have a clear classification of nets and insecticide, but nets and netting material are not exempt from duty and VAT. The Ministry of Health claims to be negotiating with Ministry of Finance to have these taxes exonerated on nets and insecticide. Importers are required to purchase foreign exchange.

3.2 Current market

3.2.1 Insect control market

Other mosquito control measures used are coils, aerosols, electric mats/liquids/powder, repellents, flitgun sprays and traditional repellents made of bark and leaves. The total anti-mosquito market (which includes coils, aerosols, electric mats/liquids and repellents) is estimated at 3,000,000 units and US\$5 million¹⁰. The total insect control market (which includes mosquitoes, cockroaches, ants etc) comprise of the following brands and market share position:

| | |
|--------|-----|
| YOTOX | 51% |
| ELF | 15% |
| BYGONE | 10% |
| RAID | 6% |
| OTHERS | 18% |

Table 4: Brands, size, availability and prices of insecticide sprays

| Brand (Manufacturers) | Size/volume | Availability | Price (CFA) |
|-----------------------|-----------------------|--|-------------|
| Yotox Senegal | Big size / Small size | Big quantities available for all the brand | 995 / 2100 |
| RAID | Big size / Small size | | 1480 / 3200 |
| ELF | Big size / Small size | | 1090 / 2500 |
| BAYGON | Big size / Small size | | 1150 / 2700 |

Spanish brands in the informal market are priced at 750 CFA

Table 5: Brands and prices of mosquito coils

| Brand (Manufacturer) | Size/vol. | Price (CFA) |
|----------------------|-----------|-------------|
| YOTOX | BOX OF 12 | 540 |
| Raid | BOX OF 12 | 575 |
| Elf | BOX OF 12 | 480 |
| catch | BOX OF 12 | 590 |

3.2.2 Nets

Nets are not available in the market throughout the year. National net coverage is estimated at about 30.9% ¹¹ (according to the study, any material perceived by interviewees to fill the function of a net was classified as such). Nets are imported from Europe, Pakistan and other parts of Africa and Asia, and distributed. They are produced in very limited quantities by local tailors and some women's groups. The nets that are produced locally by tailors vary in quality. The main clients for the locally produced nets are NGOs (such as Plan International). Some nets from Siamdutch are also imported.

Main Importer of netting material ¹²:

Sen-Rideaux (Zouhair Rammal)

Main vendor of ITNs:

Agrodis

Table 6: List of net suppliers

| | | |
|----------------------------------|---|--|
| Net Details | Sen – Rideaux ¹³ (Main local supplier who imports netting material from Italy) | Other local suppliers (import from several countries such as Egypt, Poland, Syria) |
| Form | Rectangular and conical (100% polyester) | |
| Sizes & Prices | Small 3000 CFA Medium 3500 CFA Large 4200 CFA | 2m x 2m x 1.5m 9000/11000 CFA Mainly sells netting material with pricing between 450 to 1,020 CFA for 3m x 1m (depending on net material quality) |
| Product Visibility/Trade Channel | Not visible in –store because sales are based on orders placed | Netting materials visible in-store but no display of bed nets |
| Estimated Sales | 80% of sales to consumers and 20 % to MOH and NGOs Factory capacity – 300/500 nets per day | |
| Contact Details | Mr. Zouhair Rammal 76 Rue Abdou Karim Bourgi Tel :221 821 774 Fax: 221 823 1998 | |

Table 7: Brands, sizes, availability and prices of mosquito nets

| Brand (Manf). | Size/color | Availability | Price (CFA) |
|---------------|------------|----------------|-------------|
| Chinese | Xl;l;m;s | Big quantities | X,L/15,000 |
| Korean | Xl;l;m;s | Big quantities | M 7,500 |
| Spanish | Xl;l;m;s | Big quantities | S 5,000 |
| Pakistani | Xl;l;m;s | Big quantities | |

3.2.3 Insecticides

There is no manufacturer of insecticide specifically for nets in Senegal. The main importer is Agrodis (exclusive agent for AgrEvo in Senegal), however, there are others.

Table 8: List of insecticide manufacturers ¹⁴

| INSECTICIDE DETAILS | Zeneca Public Health | Bayer Ltd. | AgrEvo (Aventis) | Cyanamid |
|--------------------------|---|-------------------------|---|-------------------|
| Product | Lambda-cyhalothrin | Cyfluthrin | deltamethrin | Alphacypermethrin |
| Brand name & formulation | Icon SC Iconet | Solfac 5% EW | K-Othrine 1% and 25%SC K-Otab (not yet available) | Fendona 10% SC |
| Packaging & pack sizes | Icon CS Community pack (500ml bottles) Iconet Kit (6ml sachet) | 20ml, 1lt, 20lt bottles | 1l and 30 l bottles | |
| Price | Not Available | Not Available | 36000-38000/1(11 treats +60 nets) | Not Available |
| Registration Status | Being processed | Registered | Planning submission for K-Otab | Being processed |
| Approval by WHOPES | Await approval | Approved | Approved | Not approved |
| Source (s) of products | C. Zard & Co. Ltd. 184, Adeniji Adele Road Idumagbo Lagos, Nigeria | Bayer Ltd. | Agrodis Agent Exclusif AgrEvo, Senegal 04 Rue Alfred GOUX-2e'me AgrEvo Bureau ¹⁵ de Liason, Siamdutch Les Niayes Sarraut | |

Most production of ITNs has been in collaboration with Agrodiss, as the main supplier of insecticide and Zouhair Rammal as the importer and supplier of net materials. At the moment, most insecticide used for treatment is in bulk liquid form and is generally sold by the liter. However, Agrodiss is planning to register and import their tablet form, K-O tab.

3.2.4 Sources of available products

Health Ministry figures suggest that 45.6% of the nets in Senegal are sold in small retail shops, 22.9% by tailors and 19.4% by street vendors. The retail price varies from CFA 5,000 to 10,000 (\$8-16).

Senegal is a producer of modest quantities of cotton and could potentially produce net fabric.

3.3 Market analysis

3.3.1 Urban/rural differentiation

Dakar represents 70% of business in the country.

3.3.2 Projected market

Assumptions:

- In every family the mother and father share a bed/mat and two children share one bed/mat. Average number of persons sleeping in the same bed is 2.24
- The warm market is those currently using any type of bed nets (31.8%)
- The potential market is the one already using sprays, coils or repellents, estimated at 60%
- Families buying nets for the first time would be willing to buy only one net.
- 20% of families buying one net would buy a second net the following year.
- Distribution of nets and insecticides would be nation-wide through private sector channels in co-ordination with the NGO network that already exist.
- There will be high intensity promotional efforts supported by public and private channels.
- 30% of these nets would be retreated in every year (every 6 months).
- 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 *

Table 9: Number of households for targeting

| | |
|---|-------------------|
| Total Population (<i>millions</i>) | 8.8 |
| Estimated average household | 10 |
| Warm market (% households) | 40% ¹⁶ |
| Number of families using other repellents (warm market) | 720,000 |

* Population growth is not taken into account.

This assumes that the population growth rate is constant across the five years.

Table 10: Estimated sales over five years
(Pending market research)

3.4 Trading issues

Trade channels

There are four types of distribution channels ¹⁷:

Ultra short channel: Manufacturer/tailor-Customer

Short channel: Manufacturer/tailor-trader-customer

Long channel: Manufacturer/tailor-wholesaler-vendor-customer

Ultra long channel: Manufacturer/tailor-wholesaler-semi-wholesaler-vendor-customer

There are approximately 50 big wholesalers and 500 smaller wholesalers in Senegal. The wholesale channel (which operates on a cash and carry basis) is non-specialized and sells to both end-consumers and retailers. The Pharmaceutical wholesale channels however, remain specialized. The traditional retailers (kiosks, hawkers, smaller corner cafes and general traders) represent 95% of business in the country and the modern retailers (supermarkets) represent the remaining 5%.

Margins taken by the different trade channels are ¹⁸:

- distributor (15%)
- wholesaler (8-10%)
- retailer (10-15%)

Table 11: Market size and distribution of outlets

| | number | Products | Number of outlets/reach |
|------------------------|---------------------------------|--------------------------|-------------------------|
| Grocery chains | 1 | SCORE all product | 7 |
| Wholesalers | 100 | All products | |
| Grocery | 15 000 | Traditional small stores | 15 000 |
| Pharmacies/Medical | 100 | | 100 |
| Petrol stations stores | 3 companies; Elf, Shell, Mobil. | All products | 50 |

Consumer behavior: 89% of Dakar inhabitants do their daily shopping in traditional stores
60% of them go usually to the market place, less than 30% go to modern stores (confidential bda insight)

4. CULTURAL AND BEHAVIOURAL ASPECTS OF ITN USE

4.1 Net ownership

In a survey amongst households who had purchased nets for 5,000-10,000 CFA, with the same price for ITNs, this was perceived to be a high price. The same households reported that on average they spend 5,177 CFA per person to treat one episode of malaria. Willingness to pay studies revealed that 68.5% of households would be willing to pay 3,000 CFA for a synthetic

net. 50% would be willing to pay 5,000 CFA, 35% 6,000 CFA, 20.6% 8,000 CFA. These figures did not differ much for cotton nets.

A survey by Group IRIS was conducted in November 1998, on behalf of the Ministry of Health. This survey found that the function of the mosquito bed net is widely recognized by the population (probably helped by its French denomination: "moustiquaire"). On average, each household using some type of nets has 3.57 nets suggesting a total estimated current market of 850,000 nets¹⁹. Given the lack of nets in the marketplace, this seems very high.

4.2 Net use

In a recent Plan International Knowledge Practice and Coverage (KPC) survey using the WHO 30 clusters survey methodology, only 2% of mothers (13/646) stated that they use ITNs, and 3.2% (21/646) of children aged 0-23 months had slept under the mosquito net prior to the night of the survey. At the end of the study Plan International concluded that the use of mosquito nets is an effective approach even though it may take time for people to adopt.

Insecticide-treated-nets (ITNs) were known by 45.7% of the respondents in the survey, and the purpose was to kill mosquitoes (45%) or to repel mosquitoes (55%). Users of ITNs represent 23.5 % of net users, which represents only 5.3% of the population. Main users are mostly in the regions of St Louis, Dakar, and Fatick / Kaolack / Tamba, where specific interventions by NGOs and the MOH took place. Nine out of ten households who used ITNs consider them very effective against mosquitoes. Urban users consider they keep their efficacy for 5.44 months on average before the need for re-treatment, while rural users reported a period of 3.22 months. Eight out of ten respondents said they would purchase an ITN.

In a further study a relatively high number of households 31.7% were reported to have used a kind of mosquito net / physical barrier the night before the interview. Net use does not markedly differ between urban and rural areas: 33.8% of urban residents and 29.4% of rural residents use nets to protect themselves from malaria. Usage also increases with increasing household size. 86.7% use double nets, 27.1% medium sizes and 11.8% small nets. Three quarters of households prefer the synthetic bed net to cotton because it is more aerated and more solid. Over 80% prefer the rectangular shape. White nets were more used because of availability and not necessarily preference. When questioned about which members of the household used the nets, 23.1% responded that it was the head of the household, 18.5% the mother, 13.9% the children and 60.7% responded that everyone used them equally. The average life of a bed net is estimated at 40 months.

Net usage in Fatick, Kaolack and Tambacounda is 30.7%, in Dakar is 14% and in Thies, Louga and Diourbel it is 10.6%. The majority of households using nets are the *diolas* (63.3%), *mandingues* (55.4%) and the *pulaars* (43.7%) in the highly endemic areas. Over 80% of the surveyed population confirmed its use as an effective protection against mosquitoes.

4.3 Net treatment/ retreatment

In the Plan International study (see 4.2) only 1 mother out of 646 (0.1%) re-impregnated her net less than six months after purchase. In Klebemer, a district of Saint Louis one of the World Vision ITN intervention areas (a community of 1,100 households) 11% use of the population use mosquito nets, 2/3 of which have been re-treated.

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

Mosquito nets are difficult to find, especially in rural areas. In a recent study 22% of respondents could not identify a place to buy mosquito nets. 45.6% of respondents had seen nets in a shop, 22.9% at a tailor, 8.8% in a health center, and 19.4% with a hawker.

Net usage is higher in areas of high vector density e.g. Saint Louis and Ziguinchor/Kolda.

Some of the obstacles to ownership have been reported as: it being cumbersome (32%), difficult to set up (30%), and makes the bedroom unattractive (42%). Nets are mainly used in the bedrooms (87.1%). However, 72% of households admit that nets help preserve the intimacy of the couple. 80% of buyers are women.

Restriction in the use of mosquito nets or in the number of mosquito nets used in a household is often due to cost considerations. Among 29% of households who discontinued the use of mosquito nets, the main reason was its replacement cost. The second reason is the lack of habit, and the third reason is the availability of alternative means to fight mosquitoes such as sprays and coils. Of the respondents who had stopped using nets, 52.7% reported that they would buy a net if the price was lower and 6.3% if the availability was higher. 20.6% reported that they did not wish to buy a net. Of respondents that had never used a net, 42.4% gave price as the reason while 19% reported that it was due to their living condition. Of these, 68.2% responded that they would buy a net if the price were lower.

5. OTHER PROMOTION INFORMATION

5.1 Communication information

5.1.1 Telephone

The urban telephone system is above average.

5.1.2 Television

There are 6 TV stations in the country - one national and 5 foreign. La Radio Television Senegalaise (RTS) has 69% market share, it is the most popular channel and the only free channel. The second channel is Canal + Horizons, which has 20% market share and is not free. The rest (CFI, MCM and Arab channels) have 11% market share, of which TV5 has 8%. 81% of households have access to TV.

Table 12: Television channels

| Channel | Coverage | Ownership | 30" spot price (US\$) | Reach (%) |
|---------------|----------|------------|-----------------------|-----------|
| RTS | National | Government | 570 | 90 |
| CANAL HORIZON | Dakar | Private | 280 | 15 |

TV media cost per contact is estimated at US\$597 for a 30 second AD for a prime time spot.

5.1.3 Radio

There are 7 national stations and 5 foreign stations. The most popular station (Walfadgiri FM) has coverage of 60%, followed by Dunya FM with 44.2%, SUD FM with 41.4% and 7 FM with 25% and Oxygene FM with 17.7%. 58% of households listen to the radio daily compared to 41% for TV.

Table 13: Radio channels

| Channel | Coverage | Ownership | 30" spot price | Reach (Dakar) |
|------------|----------|---------------|-----------------|---------------|
| RTS | Dakar | Government | 20 | 20% |
| 7 FM | Dakar | Private | 25 | 25 |
| dunya FM | National | Private | 30 | 43% |
| Sud FM | National | Private | 30 | 43% |
| walfadjri | National | Private | 30 | 55% |
| Nostalgie | Dakar | International | 25 | 20% |
| Oxy jeunes | Dakar | Association | no commercial | 10% |
| RFI | Dakar | International | PanAfrican only | 6% |

The Radio cost per contact is estimated at US\$30 for a 30 second AD for a prime time spot.

5.1.4 The print media

Senegal has 6 daily newspapers whose readership ranges from 5,000 to 35,000. In addition there are 4 weekly newspapers and 2 monthly magazines.

Table 14: Newspapers

| Title | Language | Frequency | FP price | Circulation |
|-----------------|----------|-----------|----------|-------------|
| Soleil | french | daily | 714 | 20,000 |
| Sud Quotidien | french | daily | 620 | 20,000 |
| Wal Fadjri | french | daily | 620 | 15,000 |
| Le populaire | french | daily | 500 | 16,000 |
| Info 7 | french | daily | 600 | 10,000 |
| Le matin | french | daily | 600 | 8,000 |
| Le témoin | french | weekly | 714 | 12,000 |
| Le Cafard Libre | french | weekly | 500 | 7,000 |

The Press cost per contact is estimated at US\$1 for a full page AD.

Table 15: Magazines/Newsletters

| Title | Language | Frequency / Type | FP price | Circulation |
|--------------------------|-----------------|------------------|----------|-------------|
| Bingo | News | Monthly | | 110,750 |
| Afrique International | Historical news | Monthly | | 75,000 |
| Souka Magazine | Business | Monthly | | 20,000 |
| Moniteur Africaine | Business | Monthly | | 18,000 |
| Afrique Economique | Business | Monthly | | 10,000 |
| Combat pour le Socialism | Political | Monthly | | 10,000 |
| Famille et | French | Quarterly | | 40,000 |

| | | | | |
|--------------------------|--------|--------|-----|-------|
| Development | | | | |
| Nouvel horizon | French | Weekly | 570 | 8,000 |
| Le Journal de L'economie | French | Weekly | 510 | 3,500 |

Many posters are issued by local or international brands to be posted on retail trade walls or doors. There are an estimated 15,000 traditional points of sale in Sénégal. Leaflets are more unusual.

5.1.5 Interpersonal communication

In rural areas “discussions/interactive” is believed to be the most effective medium for communication. A substantial number of women belong to women groups and community associations.

5.1.6 Outdoor media

There are two outdoor media companies – CIDOP and PUBLICOM. This media is very prominent throughout Dakar. The dominant local insecticide manufacturer Valdafrique extensively uses this medium to advertise their range of insecticides under the brand name YOTOX.

The outdoor cost per contact is estimated at US\$2985 for a billboard AD of 7m x 3m.

5.2 Advertising and promotion companies

Table 16: Advertising agencies

| Name of agency | Contact details | Telephone numbers | Fax numbers and e-mail addresses |
|--|--|--------------------------|--|
| Alliance (affiliated to FCB) | Denis Gnaman 09 BP 1722 Abidjan 09 Riviera Golf, ex GSR Abidjan, Cote d'Ivoire | 225 22438406 05884270 | Alliance@aviso.ci |
| Phenix | Mr. Henri Magri/Mr. Gilbert Drouin 34 rue Docteur Theze Sandiniery, BP 6270, Senegal | 221 823 6514 | 221 823 6513 |
| McCann-Erickson Senegal (affiliated to McCann international) | Mr. Francois Cardiergue 41 rue A . Assane Ndoye BP 2026 Dakar – Senegal | 221 822 1269 | 221 822 1193 nmce@telecom-plus.sn |
| McCann- Erickson Direct | Valerie Bui- Godeau 3 , Place de'l'independance BP 2026 Dakar Senegal | 221 823 53 10 | 221 823 5610 mced@sentii.sn |
| Panafcom Young & Rubicam(affiliated to Young & Rubicam international) | Emmanuelle Keinde Rue Maunoury Impasse Leblanc BP 22416 Dakar- Senegal | 221 823 3752 | 221 823 3751 panafcom@telecomplus.sn |
| Group Africa | Thierry Delpéch | | |

5.3 Market research companies

Table 17: Market research organizations

| Name of agency | Contact details | Telephone numbers | FAX numbers and e-mail addresses |
|----------------|---|-------------------|---|
| BDA | Yacine BA 25 Avenue Leopold Sedar Senghor, BP 1529 Dakar Senegal | 221 822 9500 | 221 822 4700 bda@sentoo.sn |
| IRIS | Aly Saleh Diop 1 Place de l'indépendance Dakar Senegal BP 1757 | 221 822 1078 | 221 822 37 91 iris@telecomplus.sn |
| McCann direct | | 221 823 53 10 | |

ANNEX 1

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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 Senegal.

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 Senegal 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 May 2000 by Mr. Camille Saade, BASICS; Ms Mamapudi Nkgadima, SCJohnson; Mr. Thierry Delpech ,Group Africa