



NETMARK REGIONAL AFRICA PROGRAM BRIEFING BOOK

Insecticide Treated Materials
in

Mozambique

December 2000



ABBREVIATIONS

<i>A.arabiensis</i>	<i>Anopheles arabiensis</i>
<i>A.funestus</i>	<i>Anopheles funestus</i>
AFRO	Africa Regional Office (World Health Organization)
AMREF	African Medical Research Foundation
c.i.f.	Customs, insurance and freight
CISM	Centro de Investigação em Saúde da Manhica
<i>Culex sp.</i>	<i>Culex</i> Species
DFID	Department for International Development
EW	Emulsifiable in Water
FLD	First Line Drug
f.o.b.	Freight on board
GDP	Gross Development Product
GNP	Gross National Product
INS	Instituto Nationale de Saúde (National Institute of Health)
ITNs	Insecticide Treated Nets (and materials)
KAP	Knowledge Attitudes and Practices
LCMS	Living Conditions Monitoring Survey
LSDI	Lebombo Spatial Development Initiative
MARA	Mapping Malaria Risk in Africa
MARAJRA	Mozambique Sugar Company
MISAU	Ministry of Health
MoH	Ministry of Health
MOZAL	Mozambique Aluminum
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
PSI	Population Services International
RBM	Roll Back Malaria
SC	Suspension Concentrate
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
WHO	World Health Organization
WVI	World Vision International

SUMMARY

Mozambique had a population of 19.3 million in 1999, with about 60% of the population earning a monthly income of US\$20 or less. The annual growth in GDP for the period 1999-2003 is expected to be 7.7% while the predicted growth in the GNP per capita is 5.3%. There is increasing investment from South Africa and there is a general air of optimism in the urban areas e.g. Maputo with access to some disposable income. Expenditures on social services have increased by 20% since 1995 in real terms.

Malaria is endemic throughout the country with most of the population at risk of stable endemic malaria. It accounts for over 40% of all outpatient attendances. The National Malaria Control Programme includes insecticide treated mosquito nets as a key strategy for malaria control. In 1997, the Ministry of Health conducted campaigns to raise awareness of treated nets. One of the objectives of the 1998 Plan of Action is to achieve a 40% household coverage of nets. Presently the national net coverage is very low, estimated at about 0.6%. Most nets originate from South Africa or leak from the PSI ITN project in Malawi, although a small cottage industry for net production had started. Over 35% of the population spend money on coils and 10% use sprays to control mosquitoes in the rainy season.

In 1999, the National Malaria Control Programme, in partnership with Zambezia Provincial Health Directorate, UNICEF, PSI and CISM developed a project to promote community-based strategies for malaria prevention and treatment in Zambézia Province. This project aims to take ITNs to scale in Zambezia province in the next two years, protecting a population of over 3 million people.

The estimated total predicted sales for nets over five years is at least 3,125,515 and for insecticide treatment is 4,063,170 (not taking population growth into account).

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MOZAMBIQUE

Map 1: General position of Mozambique



1. BACKGROUND

1.1 Demographic Information¹

Table 1: Demographic information

Population (1999-millions)	19.3
Average annual growth rate 1992-1998	2.4
Age distribution <15 years	45% ²
Urban population (% of total population)	38
Life expectancy at birth (years)	47
Total Fertility Rate (1992-7)	5.6 ³
Infant mortality (per 10,000 live births)	134
Illiteracy (% of population age 15+)	60

Ethnic groups and languages

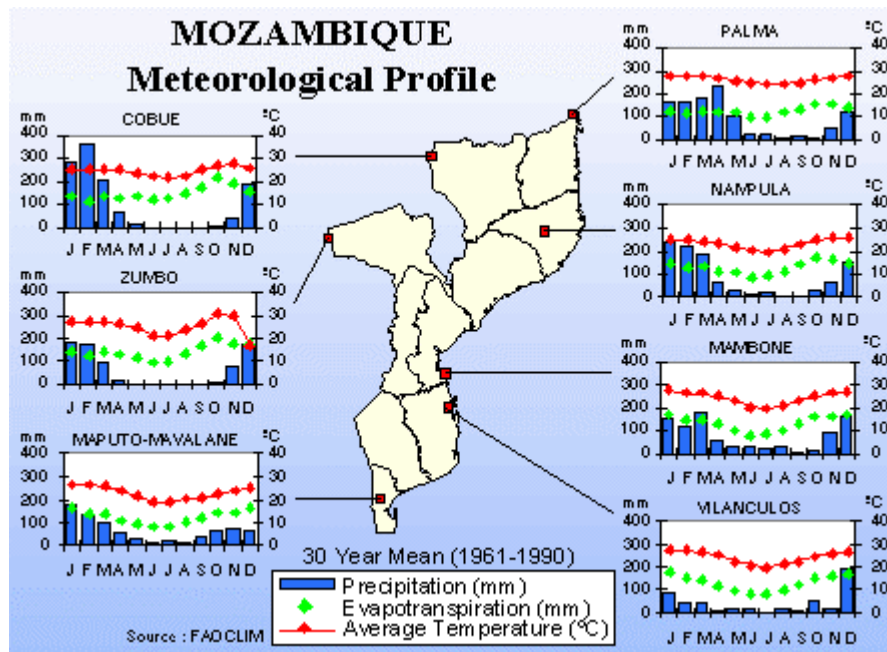
The main ethnic groups are indigenous tribal groups 99.66% (comprising of Shangaan, Chokwe, Manyika, Sena, Makua amongst others), Europeans 0.06%, Euro-Africans 0.2% and Indians 0.08%. The official language is Portuguese, however, there are also various indigenous dialects.

1.2 Geography and Climate

Mozambique is situated in Southern Africa, and covers an area of 799,380 square kilometers. To the north Mozambique borders Tanzania with the Rovuma river as the natural borderline. To the south, it borders South Africa (Natal Province), to the west, Malawi, Zambia, Zimbabwe, South Africa (Transvaal Province) and Swaziland and to the east, the Indian Ocean. The country is divided into three regions namely; Southern, Central and Northern, which are subdivided into eleven provinces, further subdivided into 144 districts. The capital is Maputo. Approximately 40% of the population live in the 2 provinces; Nampula and Zambézia. The terrain is mostly coastal lowlands, uplands in the center, high plateaus in the north-west and mountains in the west. On average, Mozambique has 20 inhabitants per square kilometer with the highest demographic density in Maputo with 3,000 inhabitants per square kilometer.

The climate is humid and tropical. Over the year temperature variations are minor (Map 2). The mean annual temperature ranges from 19°C to 26°C and relative humidity varies between 60-80%. The wet season extends from November/December to March/April. Average rainfall varies from 800mm in the southern part of the country to 1400mm in the central region. The Central Region has the highest average rainfall.

Map 2: Meteorological profile of several sites in Mozambique⁴



1.3 Economy

The GDP is mainly composed of agriculture (34.3%), manufacturing (10.5%), and services (44.8%). Exports represent 30% of the GDP and imports 65%. In 1994, Mozambique was ranked as one of the poorest countries in the world. Over the past three years and as a result of the post-war economic rehabilitation programme, this trend is stabilizing. Since 1996, inflation has been low and foreign exchange rates stable. The medium term outlook is considered to be bright as trade and transportation links to South Africa are expected to improve and the foreign investments materialize. General health expenditure per capita is estimated at around US\$ 8.5⁵. There is massive upgrading, and building taking place in Maputo indicating an economic upswing with a general air of optimism. Whilst there are a number of retail outlets (including ShopRite from South Africa), the majority of business is done informally on the streets. There is no doubt that the heart of the Mozambique economy and business opportunities lies in Maputo. Officially the population of Maputo is \pm 1 million people, however according to local businessmen, the population is actually in the region of 2 million people. The majority of goods are distributed out of Maputo, and are primarily sourced from South Africa.

1.3.1 Basic economic indicators⁶

Table 2: Basic economic indicators

GNP per capita	16.9
Poverty (<i>%pop below poverty line</i>)	69
GDP (<i>US \$ billions</i>)	3.9
Inflation (<i>1998 est.</i>)	1.38%
Average annual growth in GDP (<i>1999-03</i>)	7.7
Average annual growth in GNP per capita (<i>1999-03</i>)	5.3
Net ODA from all donors (<i>US\$ millions-1996</i>)	923
Exchange rate: Meticals per US\$1	12,394

The spread of the economically active population is as follows: agriculture and fishery (77.6%), public sector (10.7%), commerce (3.3%), industry (3.1%) and transport (1.9%)⁸.

1.3.1 Poverty levels

Mozambique has one of the lowest economic and social indicators in the world. About 60% of the population has a monthly income equal to or lower than 225,500 Meticals (US\$20), 17% between \$36 and \$20 and 8% between \$55 and \$36⁹. The national poverty line adjusted for differences in the cost of living in various parts of the country is 5,433 Meticals per person per day, based on the national average prices prevailing in April 1997. Whilst the general income is low, there is disposable income and trading is vigorous. Over the last few years expenditures on social services have increased markedly, by 20% in real terms in 1995 and another 3% in 1996¹⁰. 75% of the population is rural, surviving primarily through subsistence agriculture. 70% of the population live below the poverty line, and 67% of the population is illiterate.

A contributory factor in Mozambique's poverty is very limited access to formal health care. The Living conditions Monitoring Survey (LCMS) found that only 40% of households had a health post within 5 km, and just over 12% of households were more than 40 km from a health post. These figures did not vary according to socio-economic status, with the ultra poor, poor and non-poor having the same degree of physical access to health services. Mean distances to a health post varied little between poverty categories and averaged 18.6 km.

1.3.3. Exports

Commodities: shrimp, cashews, cotton, sugar, copra, citrus
Total value (1998): US\$ 295 million (*f.o.b., 1998 est.*)

1.3.4. Imports

Value: US\$965 million (*c.i.f.*, 1998 est.)

1.3.5. Budget

Revenues: US\$402 million

Expenditures: US\$799 million

1.3.6. Industries

Food, beverages, chemicals (fertilizer, soap, paints), petroleum products, textiles, cement, glass, asbestos, tobacco. Aluminum smelting introduced 1999/2000.

1.4 Political stability

Mozambique gained independence in 1975 after almost five centuries as a Portuguese colony. Development was slow after independence due to a host of factors including economic dependence on South Africa, a severe drought, and a prolonged civil war. A new constitution in 1990 provided for multiparty elections and a free market economy. The fighting ended in 1992 through a UN mediated peace agreement with the rebel forces.

1.5 Transportation

Railway: 3,131 km

Maputo-South Africa and Maputo-Zimbabwe

Beira-Zimbabwe and Beira-Tete

Nacala-Malawi.

These connect the three main ports and make up the three business and transport corridors of Maputo, Beira and Nacala.

Highway: 30,400km

Road transport is the most important means of transport. The primary road network allows the connection between provincial capital cities and other towns and cities. A new toll road is being built from WitBank (South Africa) to Maputo, and is due to be completed in 2001. The secondary network connects district headquarters and some localities. Within localities, a tertiary network is available. Most tertiary and secondary roads are impassable during the rainy season and in need of repair.

Main ports and harbors: Beira, Inhambane, Maputo, Nacala, Pemba, Quelimane.

Airports: 174 (1998 est.)

2. MALARIA SITUATION

2.1 *Epidemiology and Entomology*

2.1.1 Burden

In Mozambique, malaria is the most important public health problem accounting for approximately 40% of all outpatient visits. In 1998, 60% of all admissions were malaria related and a third of the mortality in hospitals was due to malaria. Malaria is the leading cause of mortality and morbidity. The greatest burden of the disease is in children under the age of five years and pregnant women. At household level malaria is likely to have a high economic impact on those in peripheral areas with no access to public health services. Malaria accounted for about 28% of the total outpatient attendance in Matola Health Centre between January and March 1997 and 35% child admissions at Jose Macamo Hospital. It also accounted for about 27% of rural hospital deaths with case fatality rates of 7% in Tete Province in the Central Region. The case fatality rate in hospitals due to malaria has been calculated to vary from 1.8% in Maputo city to 9.6% in Quelimane, Zambézia province. Detailed analysis on the economic impact of malaria is unavailable, however CISM have recently completed a study on the economic burden of malaria at household level, and the results are awaited. A multi-country initiative, the Lebombo Spatial Development Initiative (LSDI) includes one of the largest aluminum smelter in the southern-hemisphere in the south of Mozambique. This is currently being built and suffers high man-hours lost due to malaria. Malaria is considered to be such a problem that the LSDI is promoting indoor residual spraying as a malaria control method to protect areas of economic importance in the south of the country.

Plasmodium falciparum is responsible for 90% of infections with *P. ovale* and *P. malariae* accounting for 0.9% and 9.1% of infections.

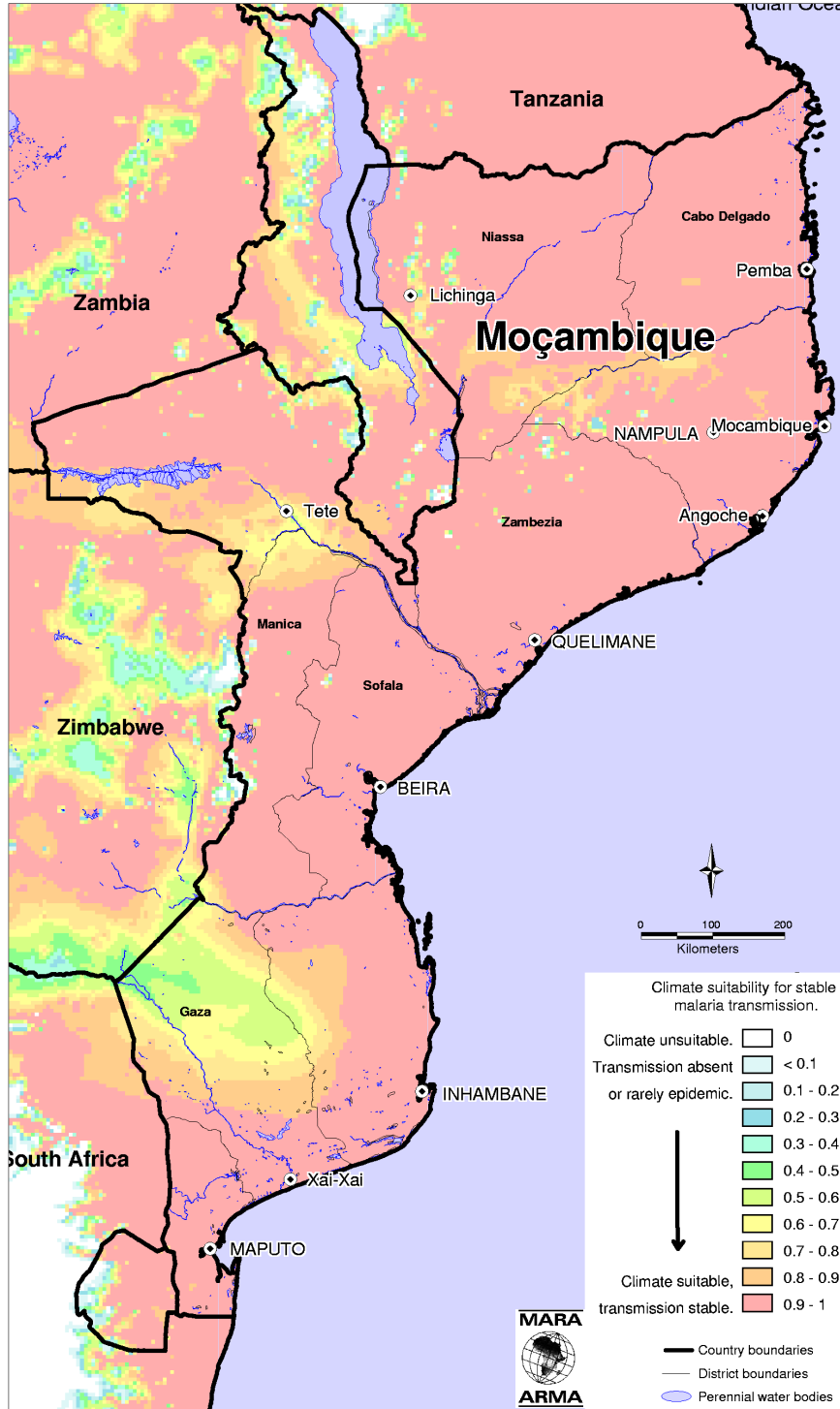
2.1.2 Endemicity

Malaria is endemic throughout the country ranging from mesoendemic to hyperendemic, although the exact levels of endemicity are not accurately known. Transmission is perennial with peaks during the end of the rainy season (January to March). The coastal region is hyperendemic, as are much of the mountainous regions. Map 3 below illustrates the climatic suitability of transmission of stable malaria in different areas of Mozambique. It must however be noted that this map is based on climatic data only, actual endemicity on the ground may vary widely with that expected from climatic data. The past 15 years have been characterized by massive migrations of people to peri-urban areas resulting in high population densities in some places especially close to open wetlands, which carry a higher risk for malaria¹¹.

Map3: MARA map of climatic suitability for the transmission of stable malaria ¹²

Distribution of Stable Malaria Transmission

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



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



*Total population at risk of stable endemic malaria: 15.6 million*¹³

2.1.3 Seasonality

The warmest month is December and the coolest is June. Mozambique has two major seasons: the wet season, which extends from November/December to March/April and a dry season. Although transmission is perennial, peak transmission takes place between December and May.

2.1.4 Vectors

Anopheles arabiensis is the principal vector in the coastal region, whereas in the mountainous areas where the annual mean temperatures are generally below 21 degrees Celsius the principal vector is *An. funestus*. Little work has however, been conducted on the role that each species plays in malaria transmission in Mozambique.

2.1.5 Local resistance to pyrethroid insecticides

Recent unpublished results obtained from KwaZulu Natal (South Africa) suggest that *An. funestus* has some resistance to synthetic pyrethroids. However, preliminary results of insecticide resistance testing carried out in Quelimane and Mocuba districts, Zambezia Province, in May 2000 indicate that there is no *An. funestus* resistance to pyrethroids in this province. There are plans for ongoing insecticide resistance testing in Mozambique as part of the Multilateral Initiative on Malaria mapping insecticide resistance in southern Africa project, coordinated by the Medical Research Council, RSA.

2.2 Malaria Control

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

The National Malaria Control Programme (NMCP) was established in 1982 with the objective of reducing morbidity and mortality due to malaria. It was originally a vertical programme, but now forms part of an integrated approach to disease control. The Five Year National Integrated Plan for Communicable Diseases has the goal of reducing the mortality caused by acute communicable diseases including malaria, diarrhea, and ARI in vulnerable groups including women of child bearing age, children under five and socially disadvantaged groups.

In March 1998, a National Malaria Control Programme Manager was appointed who works under the supervision of the Deputy Director of Epidemiology and Endemic Diseases. The National Malaria Committee is a consultative body set up in 1997 and is chaired by the National Director of Health. It expresses the commitment of the government to tackle the malaria problem but it seems to be non-functional. It is a multidisciplinary committee within the MoH (MISAU) and acts as an advisory board. A five-year Plan of Action has been developed and implemented and a new three-year plan of action was developed designed with WHO/AFRO support.

Traditionally, malaria prevention in Mozambique has focused on residual house spraying in the provincial capitals, thus providing protection for mainly urban and peri-urban

populations. In 1999, the MoH revised its approach to include strengthening of the residual spraying programme in urban areas, whilst promoting the use of ITNs for rural populations. The Lebombo Spatial Development Initiative is planning to carry out residual spraying of the whole of the Mozambique corridor along the border with South Africa, starting with Maputo Province. The results of this exercise will then determine whether the initiative is to be carried out countrywide. The capacity of the family to prevent, recognize and when necessary, correctly treat malaria or refer to a health facility is also emphasized in the new approach. This is an approach based on the Roll Back Malaria initiative.

The approach has not yet been developed into a strategy document but annual action plans have been prepared for the last two years and the present two year plan (1999-2001) reflects this new approach and RBM priorities. The RBM inception process was launched in May 2000 in Mozambique.

2.2.2 Major actors

Donors

The major partners of the Ministry of Health for malaria control are WHO, UNICEF, USAID, NORAD, DANIDA, BASICS, ZENECA, PSI and the Swiss and Australian Co-operation.

WHO

Mozambique has received financial support through the WHO extra-budgetary funds for malaria control in 20 selected districts (no longer available). Areas of support have included training in case management, selective vector control, supervision, monitoring and evaluation, operational research and IEC and social mobilization activities. Amongst its activities has been a KAP study on mosquito net use in Chokwe District in 1997 and the production and distribution of 5000 pamphlets, t-shirts and caps to promote the use of mosquito nets. In addition, in the same year, there was a campaign for administrative and community political leaders to increase awareness about the use of mosquito nets. One of the objectives of the 1998 Plan of Action is to achieve a 40% household use of insecticide treated bednets using at least one net per family.

UNICEF

UNICEF is supporting malaria control programs in 27 African countries as part of the Roll Back Malaria Initiative, Mozambique being one. During the period 1994-1998, UNICEF provided financial support to the MoH for malaria indoor residual spraying programs in major peri-urban areas. A pilot community mosquito net programme was started in Gaza Province in 1998 to investigate demand for nets, supply channels, management structures, strategies for going to scale, etc. Since 1999, UNICEF has focussed on taking to scale ITNs and home based management of malaria using community-based approaches. This is complemented by support to national level policy and strategy development and advocacy as one of the partners of RBM.

USAID

Child survival interventions are one of the four objectives of the Sector Assistance for Upgrading and Developing Health Services (SAUDE+). Specific to malaria this includes, support for access to quality childcare through IMCI and to update the malaria control policy.

World Bank

In February 1999 the World Bank supported a 'Malaria Control Rapid Assessment Mission' to Mozambique in partnership with WHO and UNICEF.

Australian Government

The Australian government provided funding for insecticide to be used in the 1999/2000 residual spraying programme.

Other agencies that have provided support to malaria control include Swiss Development Co-operation¹⁴ and DANIDA.

NGOs and other organizations

The National Institute of Health (INS) is the only scientific institute in the Ministry of Health, and it works in collaboration with the University Eduardo Mondlane Medical Faculty and the recently established Manhiça Health Research Institute (CISM). It also collaborates with the regional center for health development and has cooperative links with Danish Institutes and a special link with the Spanish Clinical Foundation. The INS conducts malaria research on mosquito nets. Some recent research projects include ITN studies in Boane which is situated 40km from Maputo, and Xai-Xai in Gaza Province.

The CISM (Centro de Investigação em Saúde de Manhiça – Manhiça Health Research Institute) was established in 1996 as a collaborative programme between INS and the Fundação Clinic at the University of Barcelona. Its main focus of activity has been on developing geographical information systems and demographic surveillance systems for malaria.

Private sector

Mozambique Aluminum (MOZAL) provides mosquito nets to its managerial staff, but not to its local staff.

Mozambique Sugar Company (MARAJRA) carries out in-door residual spraying.

2.2.3 Past and current programs

The National Institute of Health, Ministry of Health, in collaboration with partners undertook studies in Boane District on the socio-economic and cultural factors related to the use of ITNs. A cost recovery scheme was built into the studies. A single size mosquito net was sold at US\$5.50 and a family size net at US\$6.50. The green (preference; 44.4% of households) and brown nets (preference: 35.0% of households)

were imported from Siamdutch in Thailand Both conical and rectangular nets were made available and the cost of re-treatment was US\$0.50.

Studies were also undertaken by INS in Julius Nyere village, Xai-Xai District with support from UNICEF and input from Save the Children.

NMCP/UNICEF/PSI/WVI/CISM

The National Malaria Control Programme with the support of the United Nations Children's Fund (UNICEF) and the Department for International Development (DFID), and in partnership with Population Services International (PSI), World Vision International (WVI) and Centro de Investigação em Saude da Manhica (CISM) are implementing the Zambezia Initiative in northern Mozambique ¹⁵..

The objectives and goal of the project are to contribute to a reduction of malaria related morbidity and mortality among children under five years and pregnant women in initially two districts (Mocuba and Quelimane) in Zambézia Province, to be expanded to the whole province. Expansion to other districts in Zambézia Province is planned for April/May 2001. The project has four technical outputs:

- A community-based strategy to ensure early recognition of malaria symptoms and prompt and correct treatment-seeking practices
- A community-based distribution system for the First Line Drug (FLD) for malaria treatment (currently chloroquine)
- A social marketing programme to increase access to affordable ITNs and insecticide re-treatment kits in rural areas
- A behavior change strategy to stimulate demand for and to ensure correct use of ITNs and FLDs.

PSI provide the social marketing services for the Zambézia Initiative. ITNs and re-treatment kits are being marketed under the brand names "Salva" (protect) and "Forca da Rede" (Strength of the Net). Two types of net are being marketed; blue rectangular family nets, which are priced at 60,000 Meticals (US\$ 3.75) and are targeted towards rural communities, and green conical family nets which are sold at 100,000 Meticals (US\$ 6.25) and are targeted at more affluent urban populations. The urban net sales cross subsidize sales of the rural nets. Insecticide is sold at 10,000 Meticals (US\$ 0.63). The nets are sold with a separate insecticide kit included in the package. Strategies for reaching the very poor are being developed and plan to be implemented with the aid of WVI.

Salva nets were launched in May 2000 and are selling at about 2,000 per month. As of the end of November 15,246 nets had been sold – approximately 3,000 conical and 12,000 rectangular ¹⁶. Forca da Rede insecticide (Cyfluthrin) was launched in September 2000.

The project originally had a budget of approximately US\$2,500,000 and a target population of 3,000,000 people. Extra funding has recently been made available by DFID for expansion of the initiative.

UNICEF is also providing start-up costs to other ITN projects in Mozambique and is continuing to support the Xai-Xai ITN project in Gaza Province in collaboration with the INS.

In addition, UNICEF is supporting a number of other initiatives in relation to malaria control in Mozambique:

- Develop Community Capacity to prevent and treat malaria
- Create awareness of malaria at community level using community participatory approaches
- Promotion of Malaria prevention and treatment during pregnancy
- Malaria Control in Emergency Situations
- Advocacy for reduction or removal of import duties and tariffs on ITN materials and insecticides
- Enhancing government capacity in malaria control

UNICEF is also investigating the possibilities of promoting local production of nets at a factory in Mozambique, discussions have been held with the proprietors, United Nations Industrial Development Organization (UNIDO) and Centro de Promocao de Investimentos.

Emergency response in Gaza Province

Extensive and heavy flooding affected much of southern Mozambique during the early part of 2000. An NGO co-ordination workshop was held in Maputo in April 2000¹⁷, organized by MoH/UNICEF. The workshop had the purpose of encouraging NGOs to develop and support appropriate malaria control activities in response to the emergency, whilst remaining within the framework of the national malaria control strategy. The decision was made by MoH that in response to the emergency, ITNs were to be distributed free of charge to affected families. The workshop contributed towards a well coordinated response in which OXFAM and Concern distributed 85,000 nets and UNICEF plan to complete distribution of 120,000 nets by the end of January 2001 (20,000 of which were donated by Merlin)¹⁸. USAID have also donated 20,000 nets to the emergency response and some NGOs distributed nets in their resettlement kits, the numbers of which are not clear at present.

3. CONSUMER MARKET FOR ITNs

s3.1 Policy context

Policy on taxation and tariffs

Nets

Customs Duty: 15%

Total applied duty on nets: 55%

Insecticide

Duty: free

There are foreign exchange controls and a negative product list. Preference is given to imports from Portugal and COMESA members. A review of taxes and tariffs related to mosquito nets is being undertaken by UNICEF/WHO in Mozambique, with support from supply division, UNICEF Pretoria (South Africa).

3.2 Current market

3.2.1 The insecticide control market

The main insecticides available are:

- Baygon (most popular and fastest seller. Baygon is the “generic” name for insect repellents)
- Doom
- Baysul Insecticide
- Target
- Dyroach
- Fast Kill
- Dyflea
- Dyant
- Dyroach
- Tabard
- Mosquito Reach (coils)
- Soap “Bug of Soap” insect repellent

In the markets there are some no-name brands from the “Far East”, Purple Powder (cheap for surface); liquid bottled in plastic bottles – repellent (also very cheap, but only seen at one stall, owner not sure how to use it).

Table 3: Insect control products and their costs

Brand (Manufacturer)	Size / volume	Outlet type	Price (Meticals)
Insect sprays			
Doom	325ml	Supermarkets	32,000
Target	325ml	Supermarkets	35,000
Baygon	325ml	Supermarkets	35,000
Coils			
Rattex		Markets	12,000
Asparel		Markets	10,000

Expenditure in Boane District in June 1998¹⁷ on mosquito coils was found to be US\$0.1-3 (15.5% of the population) and insecticide in cans, US\$0.7-11 (5.5% of the population) in the low season. In the rainy season, 35.6% burnt herbs for mosquito control, 35.2% used mosquito coils, 10.4% used insecticide in cans and 0.4% used mosquito nets.

3.2.2 Mosquito nets

Earth Holdings (Trading as Tropical Mosquito Nets)

P.O Box 942

Durban, South Africa

Until 1999, mosquito nets were mainly imported from South Africa, a relatively expensive source, compared to neighboring Tanzania.

3.2.3 Insecticides

Table 4: Insecticides available in Mozambique and their specifications

Product	Cyfluthrin	deltamethrin
Manufacturer	Bayer Ltd.	AgrEvo (Aventis) Environmental Health
Distributor	Sociedade Mocambicana de Produtos Agroquimicos, Lda, Maputo, Mozambique	Neoquimica Ltd. Mozambique ¹⁹
	Sogrep Caixa Postal 487 Mozambique	Ecomark Ltd. P.O Box 2699 Harare Zimbabwe
Brand name	Solfac ®	K-Othrine ®
Form	Liquid EW ^a	Liquid SC ^b
Size	1litre / 20ml	1 liter / 20 liter
Packaging	Bottle	Bottle / drum
Price		
Product visibility outlets	/	
Promotion materials		
Promotion activities		
Estimated sales		
National		20 liter (awaiting registration)

^a EW = Emulsion in Water

^b SC = Suspension Concentrate

registration		
WHO/PES status		

Currently only one insecticide can be used for net treatment in Mozambique, this is Cyfluthrin from Bayer Ltd. Although other products are registered, Cyfluthrin is the only one recommended by MoH for ITNs.

3.3 Market analysis

3.3.1 Projected market

Assumptions

- In every family the mother and father share a bed/mat and two children share one bed/mat.
- The warm market is those currently using sprays, coils or repellents; at least 40% (section 3.2.2; 35.2% coils, 10.4% sprays).
- Families buying nets for the first time would be willing to buy only one net.
- Distribution of nets and insecticides would be nation-wide through private sector channels.
- There will be high intensity promotional efforts supported by public and private channels.
- 20% of families buying one net would buy a second net the following year.
- 30% of these nets would be retreated in every year (twice a year).
- Annual increases in net sales would be 30% in year 2, 25% in year 3 and 15% in year 4.
- Annual increases in insecticide sales assume 30% retreatment of existing and new nets and a growth in sales related to the number of nets.
- The *low growth* represents 15% of the market being reached in year one and all these would be sold with insecticide; *medium growth* represents 25% of the warm market being reached in year one and the *high growth* represents 35% of the warm market being reached in year one, all nets being sold with insecticide.

Illustrative Sales over 5 years ^x

Number of households for targeting

Total Population (<i>millions</i>)	16.9
Estimated average family size	4.3 ²⁰
Warm market (% households)	40%
Number of families using other repellents (warm market)	1,572,093

^x Populations have not been projected.

Table 5: Estimated five year sales
(pending market research)

3.4 *Trading issues*

Trade information

- Generally informal market
- There are still many open markets
- There are still a lot of goods that are illegally smuggled through borders

4. CULTURAL AND BEHAVIOURAL ASPECTS OF ITN USE

4.1 *Net ownership*

As part of the activities already started in Zambézia, a KAP study was undertaken by the Centro de Investigação em Saúde de Manhiça (CISM) in villages randomly sampled in Quelimane, Mocuba urban and Mocuba rural Districts. The preliminary results of that study, together with the results of focus group discussions and interviews conducted by PSI, and on a study of care seeking behavior for febrile illnesses in Manhica and Sofala provinces, give an indication of levels of knowledge and practices of prevention, and treatment seeking behavior for malaria..

The KAP study found that knowledge of nets was high (94% in Quelimane, 58% in Mocuba rural) but that net ownership was low (34% in Quelimane, 2% in Mocuba rural).

Results of a doctoral study²¹ of 5,640 households in Boane District (collaboration between the INS and the MoH) showed that when nets were sold at factory price the coverage was 40% in the high socio-economic group after six months but only 6% in the low socio-economic group. Baseline evaluations showed that 0.6% of households had at least one mosquito net at home. 62% had heard of a mosquito net before and 59.5% of respondents said that they were used to protect against bites and 0.9% said that they were to protect against malaria. 80% of households preferred rectangular nets and 72% preferred double size nets.

4.2 *Net use*

Issues of intra-household use of the net affect the impact they have on vulnerable groups. In turn, sleeping habits can either support or make more difficult attempts to ensure that vulnerable groups (in this case pregnant women and children under 5) get access to nets. The studies in Zambézia suggest that in general, both parents sleep with children under three, pregnant women sleep with their husbands, then after childbirth the mother and child sleep on their own for anything up to six months.

4.3 *Net treatment / retreatment*

Research has shown that the use of insecticide for treating nets is virtually unknown.

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

One of the most important findings of the Zambézia studies is the significant difference in knowledge of malaria and its causes and symptoms between urban and rural populations. Knowledge of the term malaria is high in urban areas (95%) but less so in rural areas (76%). Findings also suggest that knowledge of malaria transmission is high in urban areas (90% in Quelimane city) but remains low in rural areas (32% in Mocuba rural). There is also a high level of awareness about mosquito nets as a prevention tool (94% in Quelimane decreasing to 58% in Mocuba rural) but a very low level of awareness about insecticide treatment. Similar results had been found previously in a study in the peri-urban area of Matola in southern Mozambique which revealed a low

knowledge of transmission of malaria by mosquitoes²². The NMCP also conducted a KAP study with support from WHO in 1998. Preliminary results of this study showed a lack of knowledge and practices regarding malaria prevention through mosquito nets in the community.

People know a number of ways in which to prevent mosquito bites, including burning leaves, waving cloths, using sprays and mosquito nets, although in rural areas almost 50% of respondents said that they did not do anything to prevent mosquito bites. In the focus group discussions conducted by PSI, nets were considered to be the most effective method of preventing mosquito bites, although only a minority actually owned one, indicating that knowledge of preventive mechanisms does not necessarily translate into purchase and use of nets. The major obstacles to owning a net cited by rural households were not having the money to purchase a net and not knowing where to buy one. The study in Manhica and Sofala found low use of nets, and higher knowledge of them.. they also found that in urban areas households do spend significant amounts of money (up to 50,000 Meticals per month) on products to combat mosquitoes (particularly coils and sprays); in rural areas, such expenditure is low, although people do take action to combat mosquitoes.

- The population is still generally very poor
- In the big cities there are people with some disposable income unlike in the rural areas which are very poor
- On the whole, consumers still buy only the essentials
- Other expenditure is very seasonal (festive seasons)
- Most people get paid monthly
- Salaries are still very low

The price for mosquito nets is currently around US\$15-20 in supermarkets in Maputo. Nets from the Malawi PSI ITN project have leaked into the northern provinces of Mozambique and are available for approximately US\$10-15. A recent KAP survey indicates that this has resulted in increased net ownership in Zambezia province. In Marracuene District a cottage industry for making mosquito nets was initiated. Due to the high price of netting material, the sewn nets resulted in prices ranging from US\$21.00 (single size) to US\$35.00 (family size), which was substantially above the affordable range.

Although the Boane study found that both wives and husbands bought the nets, often the suggestion was the husband's (about 80-97% of the time). 71.3% of respondents saw mosquitoes as a nuisance, and 61% knew that malaria was transmitted by mosquitoes. 88.3% of households perceive malaria as a principal disease affecting their community. The Boane study showed that most nets were purchased between December and March which reflects the period of high density of mosquitoes.

In Zambézia, malaria is considered a major disease which affects everyone but mostly children. Pregnant women were not identified as being at particular risk. Key sources of information on malaria are radio in urban areas and health posts in rural areas.

5. OTHER PROMOTION INFORMATION

5.1 Communication information

Telephone

The telephone system is fair. There are 4 FM and 29 AM broadcast stations, and one television station (1997).

Number of radios: 700,000
 Number of televisions: 44,000

Television

Table 6: Television channels and their coverage

Channel	Coverage	Ownership	Reach	30" spot price
TVM	National	Private	National	\$130
RTP Africa	National	Private	South	
RTK	Maputo area	Private	Maputo area	
TDM	national	Private/cable	national	

Radio

Each big city has their own station, e.g. Maputo, Radio Cidade

Table 7: Radio channels, coverage and spot price

Channel	Coverage	Ownership	Reach	30" spot price (Meticals)
RM national AM	National	Government	National	167,000
FM 97.9	Maputo area	Government	Maputo area	167,000
Interprovinces AM	Provinces	Government		150,300
Capitol provinces	Provinces	Government		78,000
RTK FM	Maputo area	Private	Maputo area	
Radio Miramar	Maputo area	Private	Maputo area	US\$ 8.00

The print media

Newspapers

Nation-wide there are 6 newspapers, 2 daily and 4 weekly.

- Notícias (not widely spread daily paper)
- Diario de Mozambique (daily)
- Saxana (weekly)
- Domingo (weekly)
- Demos (weekly)

- Popular (weekly)

Table 8: Newspapers, frequency, price and circulation

Title	Frequency	FP price (Meticals)	Circulation
Noticias	Daily	5,000	25,000
Diario de Mozambique	Daily – Beira	5,000	20,000
Domingo	Weekly	10,000	18,000
Saxana	Weekly	10,000	15,000

Reach: Notícias - +/- 40 000, Diario de Mozambique - +/- 40 000

*Daily newspaper circulation: 5 per 1000 people in 1994*²³

Other papers or literature²⁴

- Campeao – sports paper
- De Safio – sports paper
- Tempo Magazine²⁵
- Metecais¹¹
- Imparcial¹¹
- Corio De Manyha¹¹

Media fax – “Mozambique in view”¹¹(English)

Table 9: Other print media

Title	Frequency / type	FP price (Meticals)	Circulation
Tempo	Weekly	10,000	1,500
Africa Hoje	Monthly	35,000	4,000

5.2 Advertising and promotion companies²⁶

Table 10: Advertising companies

Name	International affiliation	Address
Golo		480, Avenue Mao Tse Tung, Maputo
Signtech		1380, Avenue Mao Tse Tung, Maputo
Astral Edit	Astral Holdings	2236, Avenue Lenin, Maputo

Pangolin	O&M	17, Avenue Agust. Neto, Maputo
Visao		17, Avenue Lenin, Maputo

- Destaque – Agencia de Publicidade LDA
- Recorte – Annusio E Leituras LDA
- CityAd – Publicidade Outdoor LDA
- Publicita – Agencia de Publicidade LDA
- Intermark – Saatchi & Saatchi
- Publimedia LDA
- Companhia Inter-Africa – Publicidade LDA

The above are the most well known, following are lesser known agencies

- JB de B Agencia de Publicidade LDA
- Graphic Comerci – Industria LDA
- Bambu Producoes
- Pangolim Publicidade Lda
- Public Agencia Publicidade LDA
- Publiservice Agencia de Publicidade LDA
- Publistar Agencia de Publicidade LDA
- Imagem Global
- Elo Graifico LDA

5.3 Research companies

Instituto De Normalização de Qualidade (Conduct research in Maputo & surroundings)

Defesa Do Consumidor de Mozambique

Proconsumer

CISM

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

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 Zambia. This expanded briefing book incorporates supplemental information obtained during in-country visits made in 2000 by the staff of the Academy for Educational Development, Group Africa, Inc., Johns Hopkins University, SC Johnson and was updated by Jayne Webster of the Malaria Consortium in December, 2000.