

Written Testimony of Mr. Simon Kunene to the Senate Subcommittee on Federal Financial Information, Government Information and International Security on malaria control at 2pm on Thursday 19 January 2006, Dirksen Senate Building.

Dear Mr. Chairman,

Thank you for inviting me to submit written testimony and to give oral testimony to this most valuable hearing. I am the manager of the Swazi Malaria Control Program and am also the chairman of the Southern African Development Community (SADC) Sub Committee on malaria.

I would also like to this opportunity and thank the US Government for the contribution it has made towards malaria control in the countries affected by malaria in the African region and beyond.

I hope that this hearing will help to improve understanding of what is involved in malaria control and how the US Government can contribute to effective control of this preventable and curable disease more especially in Sub Saharan Africa. Your Government's contribution towards malaria control has been direct (bilateral President Malaria Initiative) or indirect (Roll Back Malaria and Global Fund).

1. Introduction

The Kingdom of Swaziland is a landlocked Southern African country bordered by Mozambique to the east and by South Africa to the north, south and west. Swaziland's population is approximately 1.2 million people. Like many African countries, we face significant socio economic challenges that includes high (>42%) HIV Prevalence Rate among pregnant women and poverty as a result of persistent drought situation. The economy of the country is depends on agriculture and tourism.

In Swaziland, like in many other African countries, malaria remains a threat or impediment to socio economic development of the population. It should however be mentioned that as a result of rigorous malaria control program the disease burden and its impact in the general population has over the years been maintained at near acceptable levels. It is estimated that 30% of the population is at risk of malaria and the risk levels varies within the malarious areas.

I would like to give a brief history of malaria control in Swaziland, describe the malaria control program and suggest ways that the US

Government can assist other countries in achieving the results that we have achieved.

2. Historical background of malaria control in Swaziland

The Kingdom of Swaziland has a long history of malaria control having been established in the year 1946. The main interventions for malaria control at the establishment of the program were indoor residual house spraying with Dichlorodiphenyltrichloroethane (DDT) and proper case management.

The parasite prevalence among < 5 years was 65% at the time of initiation of Indoor Residual House Spraying (IRHS). At the initiation of the malaria control >50% of the country was considered malarious. It was also estimated that about 60-70% of the population was at risk of the infection. The parasite prevalence was reduced to about 5% within 5 years of implementation of the intervention.

By 1972 there were no indigenous malaria cases reported in the country and as expected the disease was no longer considered a priority health problem and the disease was almost declared as eradicated. This unfortunately resulted in significant reduction in resources allocated for malaria control. For example the number of environmental technicians was reduced from 36 to 14 and the budget for insecticide for indoor residual house was significantly reduced hence indoor residual house spraying was discontinued.

The shift in priority and lack of resources led to the collapse of the national malaria control program and the disease incidence started increasing by 1978. The malaria situation in the country worsened in 1983 as a result of Cyclone Domonia and increased Chloroquine resistance levels.

The malaria situation had reached unacceptable incidence levels by 1986/87 and as a result the Ministry of Health sought assistance from partners including World Health Organization (WHO), South African Trade Mission (SATM) and USAID to re-establish the national malaria control program. It should be mentioned that at the time of re-establishing the program 90% of the financial resources came from the partners indicated above. The assistance from partners included procurement of insecticides drugs and equipment, training of health workers on malaria case management and information education and communication (IEC)

Indoor residual house spraying was re-launched during the period 1987/88 and DDT was the insecticide of choice for traditional structures and synthetic pyrethroids for oil painted surfaces. The agreement between

Government and the partners was that Government would gradually increase the budget for malaria control to be able to absorb the cost of running the program once the partners pull out.

The partners (USAID-CCCD and SATM) finally pulled out during the period 1992/93 and Government had not significantly increased the budget to absorb the costs of running the program and as a result the program was struggling because of limited resources. The country as a result of poor indoor residual house spraying coverage and above average rainfall received during the period 1994-1996 experienced a serious epidemic of the disease 1995/96 season.

In an effort to address the unacceptable malaria situation the Government included malaria as one of its priority diseases in the Economic and Social Reform Agenda (ESRA) and committed herself in increasing the malaria budget by 30% per year for three years (1996/97 to 1998/1999).

The increase in the allocation of resources for malaria control by the Government resulted in increased indoor residual house spraying coverage in the country and a significant reduction in the burden of the disease. The Government of Swaziland is allocating about 90% of the recurrent expenditure for malaria control and the rest comes from partners.

The country recently benefited from the launch of the Roll Back Malaria (RBM) initiative. The RBM initiative resulted in increased resources for the national malaria control program.

The country also got support from the Global Fund to fight HIV/AIDS, Tuberculosis and Malaria Round 2.

3. Current strategies

The implementation of malaria control activities are guided by the national malaria control policy. The major strategies are based on the global malaria control strategy and they include vector control, case management, disease surveillance, information education and communication, epidemic preparedness and response, operational research and program management

3.1 Vector control

In the area of vector control the national malaria control program has over the years relied on indoor residual house spraying and recently 2004 adopted use of insecticide treated nets.

3.1.1 Indoor residual house spraying

The planning, implementation, monitoring and evaluation of indoor residual house spraying activities at all levels (national, regional and local) remains the responsibility of the national malaria control program. At national level the national malaria control program, at the end of each malaria season in consultation with the entomological and disease surveillance sections of the department prepares a list of areas to be sprayed.

The inclusion criteria for areas to be sprayed is based on updated and sound entomological and epidemiological data. Areas which have not report indigenous malaria cases in the 2 consecutive malaria transmission seasons are not included in the indoor spray program.

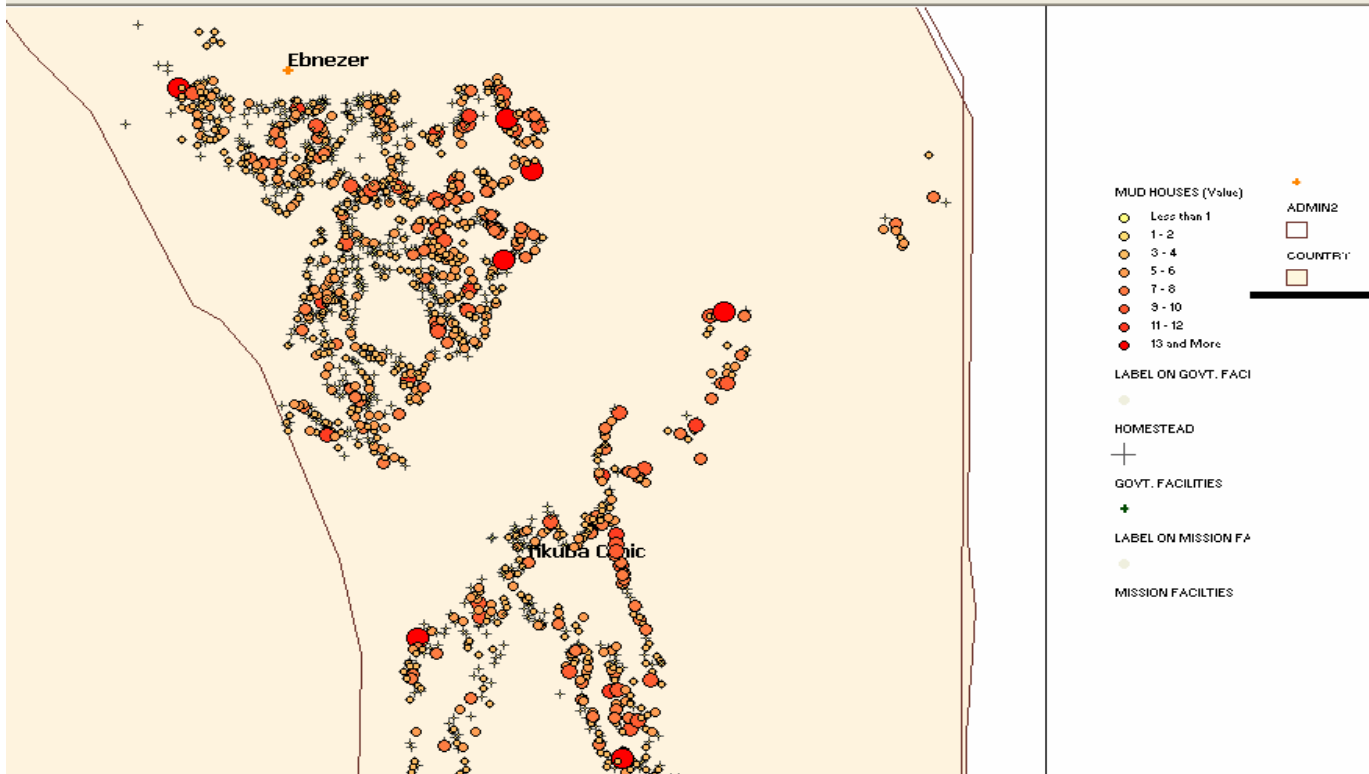
The implementation of IRHS is always preceded by intensive training of all personnel to be involved in the exercise. This is done to ensure that the insecticide is properly applied on wall surface. The training also covers the responsible use of DDT which has been the insecticide of choice over the years.

The national malaria control program has over the years maintained a high (92%) spray coverage.

The NMCP has recently (2004-2005) introduced the use of Geographical Positioning Systems (GPS) in the planning, implementation, monitoring and evaluation of indoor residual house spraying activities. The GPS programme is funded through the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (GATM) with technical assistance from WHO and Medical Research Council (MRC) in Durban South Africa. Coordinates (Longitude and Latitudes) of all homesteads are taken and entered into Health Mapper for spatial distribution (see fig 1).

Information collected in the GPS also includes the type of surfaces and number of rooms per homestead. This information is very important for future planning of the intervention because it will be easy to quantify the amount and type of insecticide that will be required. Information on the number of people in each homestead sprayed is also collected and this allows the program to effectively determine the proportion of the population protected by indoor residual house spraying.

Fig 1 Homesteads with mud surfaces at Matsanjeni Mambane



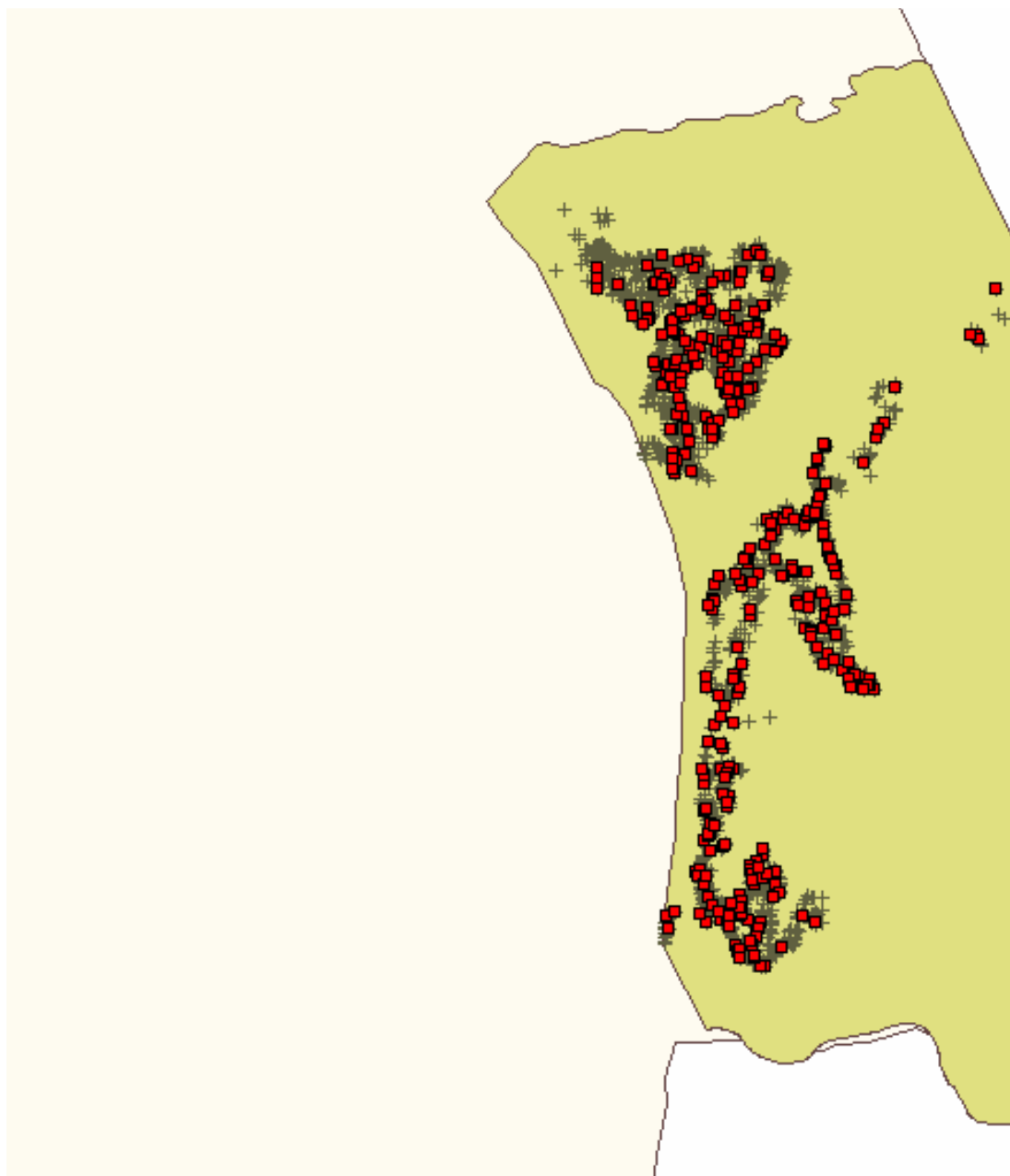
3.1.2 Insecticide Treated Nets

The country as mentioned early has recently adopted use of insecticide treated nets. With funding from GFATM the national malaria control program started distributing bed nets to pregnant women and children under 5 years.

The nets are distributed free to the target groups. The objective based on the 2000 Abuja Declaration on malaria is to reach 60% of the target groups with the intervention. The country also received support from JICA who procured Long Lasting Nets (LLN) for distribution.

Recent 2005 surveys found that 40% and 13% pregnant women and children under 5 years respectively in targeted areas reported to have received ITNs.

The program during routine IRHS activities also identifies all households with ITNs and the information is included in the GPS. The figure below shows households with ITNs.



3.2 Case management

Case management forms one of the cornerstones of malaria control as it is able to significantly reduce morbidity and mortality due to malaria. Whilst pregnant women, infants and young children in endemic areas, and 'non-immune' persons traveling to malaria endemic areas, have traditionally been considered to be the high risk groups, it is important to note that due to the unstable nature of malaria in Swaziland, most patients presenting with malaria in this country are non-immune regardless

of age, sex or area of residence. Severe and complicated malaria is therefore not uncommon even in adults living in malarious areas in Swaziland. Due to the low levels of acquired immunity, severe malaria can develop rapidly and, hence, early presentation and diagnosis are very important.

Effective case management of uncomplicated malaria can greatly reduce the incidence of severe malaria. Prompt referral and effective management of severe cases will minimize malaria mortality.

The national malaria control program has over the years invested on in-service training of health workers on malaria case management. This has resulted in improved performance of health workers which has significantly contributed to reduction in mortality.

It is also worth noting that the Government of Swaziland has always ensured that anti-malaria drugs are available in all health facilities. The country is still using Chloroquine because studies have not shown any evidence of existence of resistance. It should however be mentioned that the country is in the process of changing Chloroquine to more effective drugs because of added advantages of using combination therapies.

3.3 Disease Surveillance

The NMCP operates an effective weekly malaria surveillance system, which is timely and has a high coverage. This has been successfully used to detect malaria outbreaks at the local and national levels. There is a national malaria database that summarizes the range of malaria data available.

At the health facility level, capacity building in malaria data management, mapping and analysis has been achieved. The effective disease surveillance system is very critical and it ensures that the available scarce resources are used where the greatest impact will be realized.

3.4 Operational research

Operational research is an integral part of the program. The major areas of research include routine monitoring of drug and insecticide resistance. Community Knowledge Attitudes and Practices studies on malaria are conducted on a regular basis.

Annual parasite prevalence studies are conducted to monitor the burden of the disease at community level. The national malaria control

program collaborates with a number of institutions both locally and internationally.

4. Impact interventions on burden of the disease

The effective planning, implementation, monitoring and evaluation of IRHS and other interventions have over the years maintained the burden of the disease at near acceptable levels in the country.

In the last 5 years the country has realized significant reduction in mortality and morbidity of malaria. The country has actually achieved the Abuja Target of reducing malaria morbidity and mortality by 50% by 2010. The biggest challenge now is how to sustain the achievement to 2010 and beyond.

The achievements can be attributed to a number of factors including the maintenance of high indoor residual house coverage and population protected by IRHS and consistent availability of drugs in all health facilities in the country.

The number of clinical malaria cases has been reduced from above 45000 in 2000 to less than 10 000 in 2005. This indicates a more than 75% reduction.

The number of laboratory confirmed cases has also been significantly reduced from about 4000 in 2000 to less than 300 in 2004/5 season.

The number of malaria attributed admission has been reduced from about 1800 in year 2000 to less than 200 in 2004/5 season.

5. Regional collaboration

The Kingdom of Swaziland is a member of a number of regional organizations. These organizations include the Lubombo spatial development initiative (LSDI) and Southern African Development Community (SADC).

5.1 Lubombo Spatial Development Initiative

The Governments of South Africa, Swaziland and Mozambique in conjunction with some key private partners, launched the Lubombo Spatial Development Initiative (LSDI).

The LSDI malaria control program is coordinated by the Regional Malaria Control Commission comprising of program managers, public health specialists and scientists in the three countries.

The major activities in the LSDI as outlined in the protocol are indoor residual house spraying, introduction of effective drugs, strengthening

health information and strengthening capacity by training of health workers on malaria control.

Baseline parasite prevalence surveys among 5-15 years conducted in the three countries in 1999 showed rates of up to 80% in Mozambique, 40% in South and 5% in Swaziland.

The low parasite prevalence in Swaziland can be attributed to the fact the program has been consistent in indoor residual house spraying using DDT where as in South DDT use was stopped during the period 1996-2000 and the program in Mozambique because of a political unrest.

The LSDI malaria control program has been implementing IRS in the last 5 years. ACT has been introduced in most parts of the LSDI area (Mozambique and South Africa).

The impact of the implementation of these interventions have been successful because recent 2005 parasite prevalence showed that prevalence rates have been reduced from 80% to <20% in Mozambique, from 40% to <10% in South Africa and from 3.5%< 0% in Swaziland. It should be mentioned that DDT has been introduced in the LSDI area (Mozambique) and significant reductions are expected.

5.2 Southern African Development Community.

The Kingdom of Swaziland is member of the SADC. In the SADC region malaria remains one of the major public health problems.

The SADC member states established a Sub Committee on malaria which is chaired by Swaziland. The objectives of the sub committee are to facilitate coordination and harmonization of control interventions in the region. The SADC region has developed a strategic framework for malaria.

The major areas of work includes strong components of vector more especially IRS, cross border initiatives, operational research and capacity building.

It should be noted that most of the countries in the region are implementing IRS. DDT is used in 6 (South Africa, Swaziland, Namibia, Zambia, Mozambique and Zimbabwe) SADC member states.

In a recent, November 2005 SADC health ministers meeting held in South Africa, it was resolved that member states should support IRS with

effective insecticides like DDT because it has been proven to be very effective.

The health ministers also indicated support of the establishment of cross border malaria control initiatives like the LSDI.

6. Lessons learnt

- Indoor residual house spraying with effective insecticide like DDT is very effective in reducing the burden of the disease but it requires proper organization and consistent allocation of resources .
- The Government commitment in resource allocation is very critical for the sustainability of the intervention. For example in Swaziland, in years when the resources for malaria control were reduced the country experienced significant increases in the incidence of the disease.
- The proper training of spray personnel in proper insecticide application is very critical for effective implementation of IRHS.
- Intensive community mobilization is also very important for effective implementation. Communities need to be educated on the importance of IRHS for them to cooperate with the spray teams and ensure high spray coverage. The country has over the years maintained spray coverage of above 90% because of investments in community mobilization.
- Collaboration with neighboring countries is very effective as indicated by the successes in the LSDI programme
- Use of effective drugs is very critical in reducing malaria morbidity and mortality
- Political commitment is important for sustainability of national malaria control programmes

6. Way forward.

In view of the successes the country has made in reducing malaria morbidity and mortality the program will continue implementing IRHS complimented by other interventions like ITNs.

The program will continue to closely monitor the effectiveness of IRHS to ensure the rational utilization of the scarce resources.