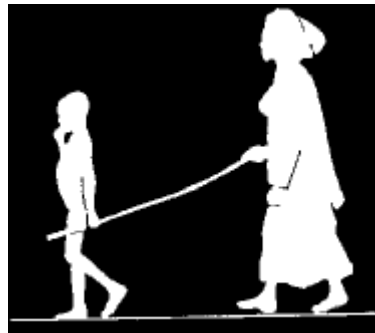


**SUMMARY PROCEEDINGS**

**THIRD ANNUAL PROGRAM REVIEW OF CARTER CENTER-ASSISTED  
TRACHOMA CONTROL PROGRAMS**

***Increase Clean Faces! Decrease Flies!***



**The Carter Center  
March 11-12, 2002**

**Funded by:  
Conrad N. Hilton Foundation  
Lions Clubs International Foundation**

**cnhf**



## ACKNOWLEDGEMENTS

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The individuals below assisted with the preparation of these proceedings. Their contribution and support are gratefully acknowledged.

Ms. Misrak Makonnen	The Carter Center
Ms. Jennifer Moore	The Carter Center
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Note:

Inclusion of information in the Trachoma Program Review Proceedings does not constitute "publication" of that information.

## EXECUTIVE SUMMARY

The third annual Program Review for Carter Center-assisted trachoma control programs was held on 11-12 March 2002 at The Carter Center's headquarters in Atlanta. The theme of the meeting was: ***Increase Clean Faces, Decrease Flies!*** As in previous years, the objectives of the Program Review were to assess the status of each national trachoma control program, identify challenges encountered in creating national trachoma control programs, assess impediments and problems in program implementation and discuss solutions, as well as to promote sharing and standardization of information. In this, our third year together, special attention was given to improving environmental hygiene, particularly through fly control. The discussion of trachoma control program surveillance, monitoring and evaluation continued, building on special sessions held in each of the previous two annual program reviews.

National and regional trachoma control program coordinators representing the ministries of health of Ghana, Mali, Niger, Nigeria and Sudan attended. In addition, The Carter Center's resident technical advisors and country representatives from Ghana, Ethiopia, Mali, Niger, Nigeria and Sudan participated in the meeting. Representatives of the Conrad N. Hilton Foundation, Lions Clubs International Foundation (LCIF), Pfizer Inc, the World Health Organization, Helen Keller Worldwide (HKW), the International Trachoma Initiative (ITI), World Vision International, the U.S. Centers for Disease Control and Prevention (CDC), the UK Medical Research Council and London School of Hygiene and Tropical Medicine and Emory University also participated. This year, the chief medical officer of the Sudan Peoples' Liberation Movement (SPLM) attended the program review to discuss trachoma control activities in OLS/S-supported areas of Sudan.

Each country program gave presentations on their current status and plans for the next year, followed by open discussions. This year, the country program presentations were split in two: Facial hygiene and environment (*F&E*) components were discussed on the first day, surgery and antibiotics (*S&A*) on the second. This structural change focused participants' attention on specific aspects of SAFE, and encouraged a more in-depth and balanced examination of each national program, with emphasis on the F&E components. The presentations included epidemiological data and sociological studies on trachoma in each country, and an update on the status of program interventions being undertaken. Plans for monitoring and evaluation of the programs and program partnerships with other ministries and international development organizations were also presented. Discussions included successes, constraints, and challenges of the country programs. Recommendations for each of the countries on how to improve their trachoma control efforts were proposed and discussed by all participants. Two of the most significant accomplishments of the third annual program review were that each of the national programs set measurable program targets for the year 2002, and great progress was made by the group in standardizing indices for program monitoring and evaluation.

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## ACRONYMS

ADRA	Adventist Development and Relief Agency
CBM	Christoffel Blindenmission
CDC	U.S. Centers for Disease Control and Prevention
CMA	Christian Mission Aid
FGD	Focus group discussions
FMOH	Federal Ministry of Health
GOS	Government of Sudan
HKI	Helen Keller International
ICEH	International Centre for Eye Health
ITI	International Trachoma Initiative
KAP	Knowledge, attitudes, and practices
LGA	Local Government Area
MOH	Ministry of Health
NGO	Non-Governmental Organization
NPPB	National Program for Prevention of Blindness
NR	Northern Region (Ghana)
OLS	Operation Lifeline Sudan
SAFE	Surgery, Antibiotics, Face Washing & Environmental Improvement
SRC	Swiss Red Cross
SF	SightFirst
SSI	SightSavers International
STCP	Sudan Trachoma Control Program
TCP	Trachoma Control Program
TRA	Trachoma Rapid Assessment
TF/TI	Trachomatous inflammation-follicular/intense
TT	Trachomatous trichiasis
UWR	Upper West Region (Ghana)
WHO	World Health Organization
WVI	World Vision International

## INTRODUCTION

The Carter Center Trachoma Control Program began in 1998 with a grant from the Conrad N. Hilton Foundation. With this support, The Carter Center works in collaboration with national and regional trachoma control programs in Ghana, Mali, Niger, Yemen and Nigeria. In 1999, thanks to the Lions-Carter Center SightFirst Initiative, the Center expanded its trachoma control activities to also begin assisting Ethiopia and Sudan. The Carter Center works directly with national and regional governments, local Lions Clubs and other partner organizations to achieve control of trachoma through community-based interventions, operations research, and advocacy. In Mali, Sudan and Ghana, the national trachoma control programs benefited in 2001 from donations of Zithromax from Pfizer Inc through the International Trachoma Initiative.

Based on experience from the Guinea Worm Eradication and River Blindness Control Programs, The Carter Center maintains an emphasis on health education and community mobilization – enabling and encouraging people to help themselves. The Center assists ministries of health in implementing interventions to control trachoma, with an emphasis on the “F” and “E” components of the SAFE strategy and the use of routinely collected surveillance data for program management. The Center also assists national trachoma control programs in conducting epidemiological, sociological and operations research studies. These studies include prevalence surveys, rapid assessments and knowledge, attitudes and practices (KAP) studies to obtain baseline information on trachoma.

One of the guiding principles of The Carter Center is to work **in partnership** to help implement health programs. The Center works closely with ministries of health, particularly with regional and national coordinators of trachoma control programs. The Center also collaborates with other international organizations working in trachoma control such as Christoffel Blindenmission (CBM), Sight Savers International (SSI), the World Health Organization (WHO), Swiss Red Cross, Orbis, International Trachoma Initiative (ITI), Helen Keller Worldwide (HKW) and World Vision International (WVI). The Conrad N. Hilton Foundation and Lions Clubs International Foundation (via the Lions-Carter Center SightFirst Initiative) are the primary donors supporting The Carter Center’s trachoma control activities.

The Carter Center began facilitating annual program review meetings as part of the Guinea Worm Eradication Program. Guinea worm program reviews became a significant component of the eradication effort, bringing national program coordinators together to discuss pertinent issues with their peers, setting standards and solving problems. Major donors and implementing partners also attend program review meetings, deepening their insights and opening doors for expanding partnerships. This concept has been applied successfully to the Global 2000 River Blindness Program and, since 1999, to the Trachoma Control Program.

## **Ghana Trachoma Control Program**

*Presented by Dr. Maria Hagan, National Eye Care Coordinator & Dr. Daniel Yayemain, Trachoma Program Manager, Ghana. Carter Center assistance to Ghana is funded by the Conrad N. Hilton Foundation.*

### **Background**

Cataract and glaucoma are the major causes of blindness in Ghana, followed by trachoma. Blinding trachoma is most prevalent in the hot and dry areas of the northern part of the country, especially in the Northern and Upper West Regions (NR and UWR) (see maps). It is interesting to note that the Upper East Region, located next to the two trachoma-endemic regions, is relatively free of trachoma (and Guinea worm disease), probably resulting from its geological configuration (resulting in increased access to clean water). A trachoma rapid assessment (TRA3) was done in July 1999 with support from the national Trachoma Task Force, CBM and Carter Center, using a modified WHO methodology. The TRA3 established that blinding trachoma exists in the NR and UWR and helped to prioritize trachoma-endemic villages for treatment and prevention activities. In March 2000, The Carter Center assisted the National Trachoma Control Program to do the first population-based trachoma prevalence survey in the Upper West and Northern Regions.

In addition to the prevalence survey, The Carter Center provided technical and financial support to do Ghana's first knowledge, attitudes and practices (KAP) studies in the UWR (December 1999) and NR (July 2000) utilizing household surveys, focus group discussions and community observations. The results of these studies were used during MOH program planning workshops supported by The Carter Center and the ITI in October 2000 and January 2001 in which district and regional plans for trachoma control were established.

### **Program Achievements in 2001**

#### *Hygiene Education, Face Washing and Environmental Sanitation*

The Ghana trachoma control program has trained *front line workers* (teachers, environmental health workers, community health workers and village volunteers) to provide health and hygiene education in trachoma-endemic communities. The channels of health education being used in the program include:

- One-on-one and group health education presentations and discussions
- Radio spots and discussion programs
- Mobile video shows taken to trachoma-endemic communities
- Community drama and durbars (Ghanaian village meetings mixing entertainment, presentations and discussions).

In 2001, health education on trachoma control and prevention activities included 93 radio spots, 42 drama sessions, 12 sessions of chiefs and opinion leaders and 10 video shows in mostly hyperendemic communities in both regions.

### *Front line workers*

The Ghana Trachoma Control Program trained 134 teachers and 93 community health workers in 2001. These frontline workers provide school-based hygiene education, assist village volunteers in health education and help health workers with the registration of community members for antibiotic treatment. Teachers are taught to inspect students' hygiene daily, screen them for conjunctivitis, and hold environmental clean up days.

In 2001, the program also trained 54 environmental health workers to inspect family compounds, focusing on the disposal of sewage, waste water and refuse. In addition, they provide hygiene education to community members and mobilize communities for clean up days. Environmental health workers are responsible for working with district assemblies and NGOs to construct sanitary facilities. Line listings of trachoma-endemic communities are updated by environmental health workers.

Ninety-three community health workers were trained by the Ghana TCP in 2001. These health workers integrate trachoma activities into their routine work with mothers and children, and also supervise village volunteers carrying out trachoma activities. During the community-based antibiotic treatment campaigns, community health workers provide both one-on-one and group health education to the community. Finally, over 600 village volunteers have been trained. These volunteers do health education presentations using materials developed with assistance from the BBC World Service Trust.

Supervision is the key to working efficiently and effectively with front line workers. The program has developed a supervisory checklist to enhance supervision and a forms to collect routine data on health education activities in trachoma-endemic communities (see Figure I).

### *Surgery*

During 2001, three districts in the Northern Region registered 218 trichiasis patients, all of whom had surgery to correct their trichiasis. The Upper West Region registered 129 and did surgery on 118 (91%). A total of 347 patients were registered and 336 (67%) surgeries were done.

### *Antibiotics*

Thanks to Pfizer's generous donation of Zithromax, the first distribution of 100,000 doses of azithromycin was conducted in both trachoma-endemic regions. Prior to community treatment with antibiotics, health workers were provided training on the pharmacology of drug, mixing, dosing using height sticks, and monitoring side effects. Azithromycin was provided to all except pregnant women, children under one year of age and severely ill persons, all of whom received topical tetracycline eye ointment instead. Communities with TF/TI rates greater than 20% received mass treatment. Trachoma-endemic communities with less than 20% TF/TI rates received targeted treatment in which only women and children were treated. In all, 71,438 (81%) of the 88,237 persons registered were treated with azithromycin and 6,196 with topical tetracycline.



**Targets for 2002**

- Increase intervention villages by 25%, from 225 to 280 villages.
- Implement hygiene education in all 280 target villages.
- Build 300 latrines and provide 30 water sources for trachoma-endemic villages.
- Treat 100,000 people with azithromycin.
- Do 500 trichiasis surgeries and train six trichiasis surgeons.

**Recommendations**

- The Ghana TCP should complete their proposed study of the seasonality of active trachoma.
- Radio listening clubs should be launched in hyperendemic villages. The Carter Center will provide technical and financial assistance in this process.
- The Ghana TCP should look for partners to work in water provision.

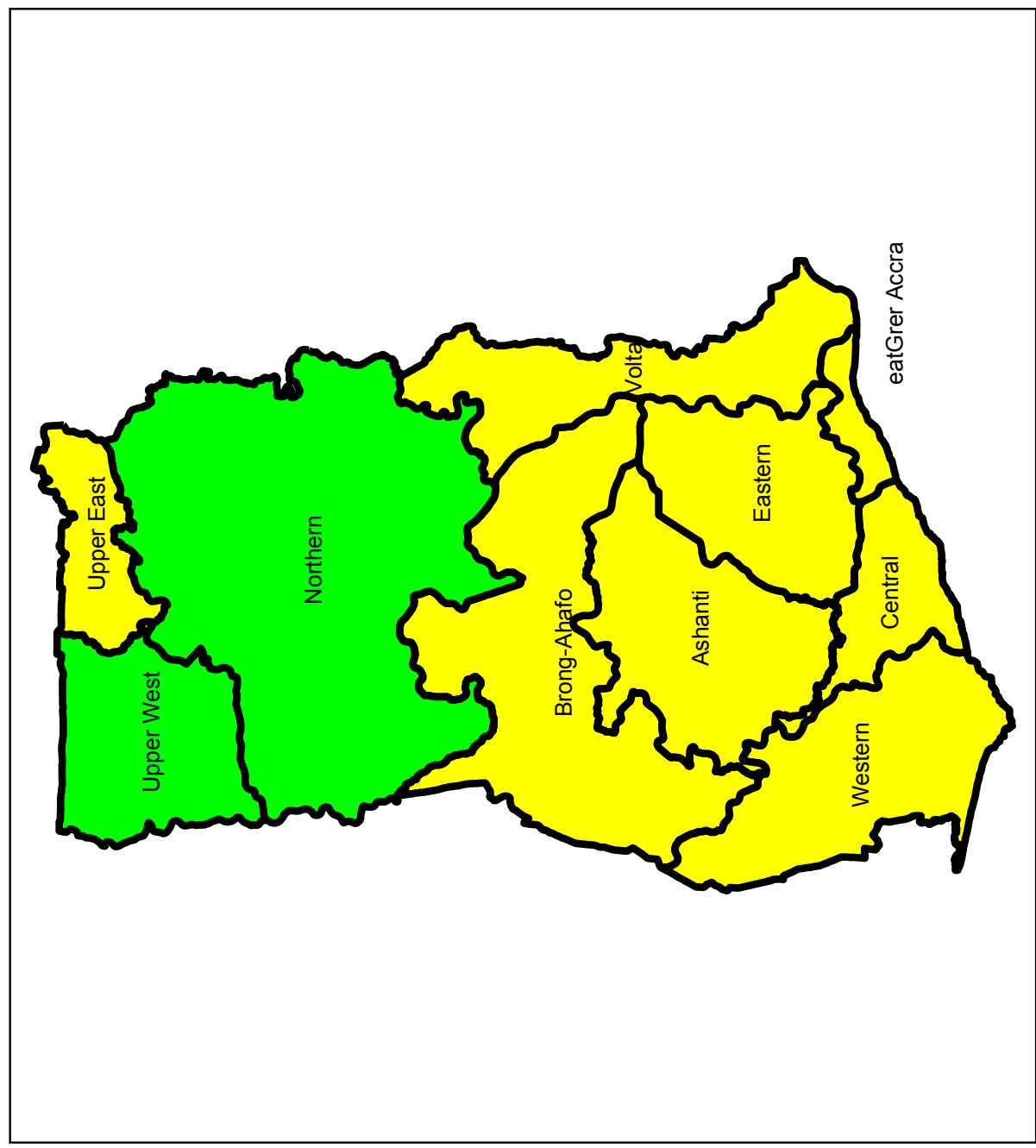
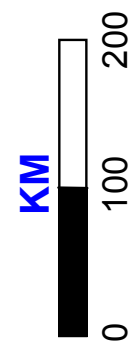
# MAP OF GHANA

## SHOWING TRACHOMA CONTROL REGIONS

**Key**  
Regions

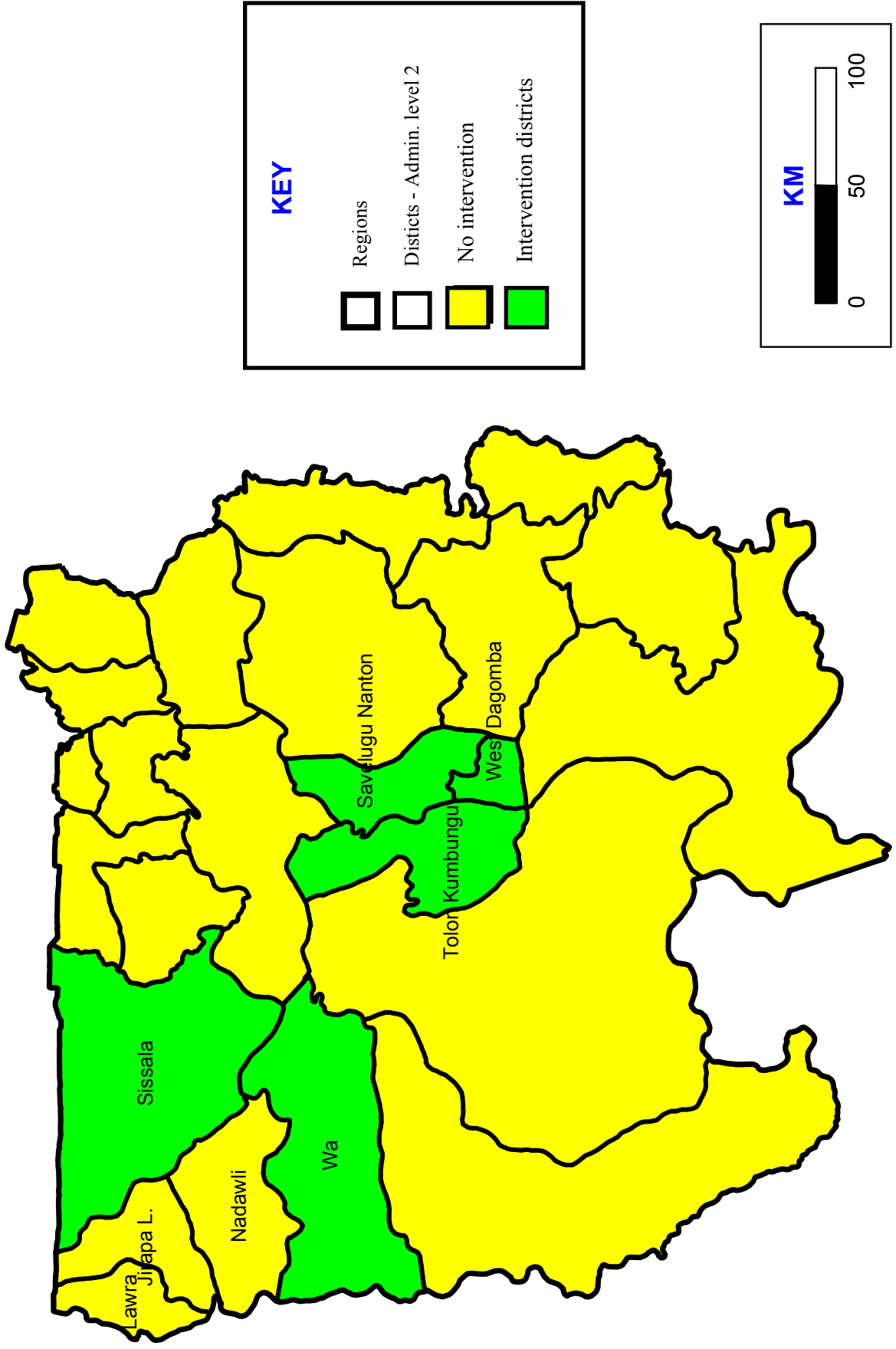


No intervention  
Intervention

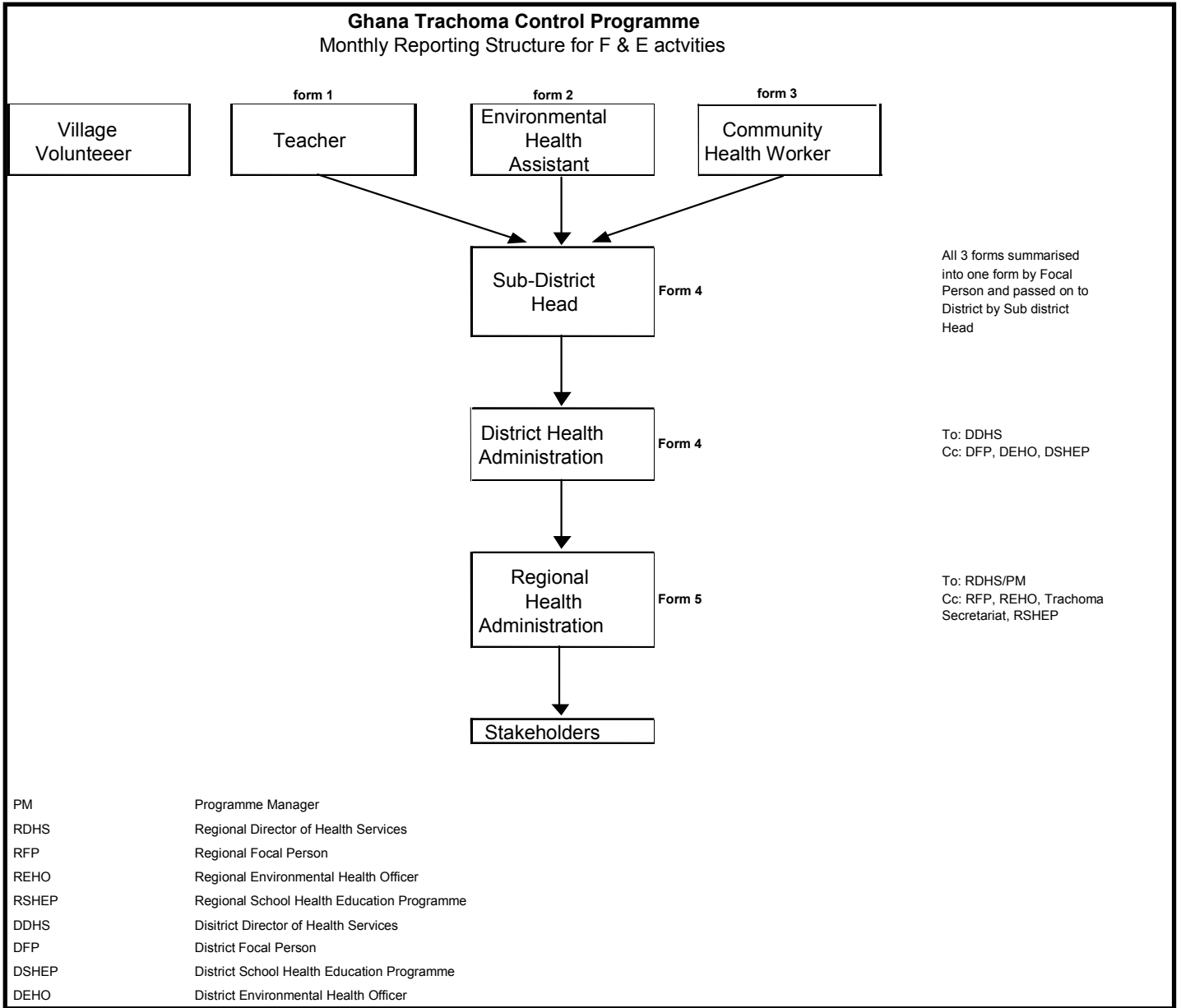


# MAP OF NORTHERN GHANA

SHOWING THE DISTRICTS WITH TRACHOMA CONTROL ACTIVITIES



**FIGURE I**



## Mali Trachoma Control Program

*Presented by Dr. Doulaye Sacko, National Coordinator, Mali Prevention of Blindness Program, Ministry of Health. Carter Center assistance to Mali is funded by the Conrad N. Hilton Foundation.*

### Background

Blindness is a major public health problem in Mali. Surveys on blindness between 1980 and 1990, showed the major causes of blindness to be cataracts (45%), trachoma (25%), and glaucoma (9%). The National Prevention of Blindness Program was established in 1994, and a trachoma component was added two years later. In 1996-7, the first national trachoma prevalence survey showed that trachoma is endemic in each region of Mali. The overall prevalence of active trachoma (TF/TI) in children under 10 years of age was 35% and trichiasis (TT) among women over 15 years of age was 2.5% (see maps). The Malian Trachoma Control Program estimates that 85,000 individuals need surgery for trichiasis.

Knowledge, attitudes, and practices (KAP) surveys were done in 1996 and 2000 in the Koulikoro Region. They provided the national program with baseline sociological data for the development of health education strategies and materials. In October 1999, the Mali Trachoma Control Program was launched in Koulikoro in an official ceremony with General Amadou Toumani Touré, now president of Mali, and former US President Jimmy Carter.

### Program Achievements in 2001

#### *Face washing and environmental change*

In Mali, “F” and “E” activities are based on health education. To this end, the program has prepared health education messages and materials. One thousand five hundred flipcharts and 500 audiotapes were prepared and distributed. Training activities in 2001 built the following regional health education teams:

- |                  |   |
|------------------|---|
| <b>Koulikoro</b> | <ul style="list-style-type: none"><li>• 30 TCP health education trainers</li><li>• 400 health educators</li></ul> |
| <b>Ségou</b>     | <ul style="list-style-type: none"><li>• 30 health education trainers</li><li>• 350 health educators</li></ul>     |
| <b>Kayes</b>     | <ul style="list-style-type: none"><li>• 30 health education trainers</li></ul>                                    |

The school health program, developed with support from Helen Keller International, continued in 2001. School “communication days” were held in which students disseminated messages on trachoma control to their community through songs, dances, poems and plays. In addition, Mali celebrated *World Sight Day* for the second consecutive year, and expanded it into a *Prevention of Blindness Week* from October 11-17, with the main theme: *Together for the Elimination of Trachoma in Mali*. The week was launched by the Minister of Health, and featured many activities designed to raise awareness and advocate for trachoma control. Activities included a

press conference, trachoma screening and treatment workshops, movies and debates on national television and radio.

### *Surgery*

Two strategies were used to provide corrective lid surgery for trichiasis patients: health center-based, and outreach campaigns (eye camps). Approximately 2,500 trichiasis patients underwent surgery in 2001.

### *Antibiotics*

In the past year, approximately 300,000 tubes of tetracycline ophthalmic ointment were sold in Malian hospitals, health centers and pharmacies. Nonetheless, the needs of the population were not met. In 2001, Mali received its third shipment of Zithromax, donated by Pfizer Inc. Approximately 300,000 persons have received Zithromax treatment, 200,000 of them were treated for the second time. The cost-efficiency study comparing different distribution strategies is ongoing.

### *Monitoring and evaluation*

In July 2000, the TCP held a workshop to develop monitoring and evaluation indicators in Bamako, with support from The Carter Center. At that time, a set of indicators was proposed for routine data collection, which were further refined in 2001. In addition, an evaluation of the Mali TCP was done with funding from The Carter Center. The evaluation consisted of prevalence and KAP surveys to measure the impact of TCP activities. The surveys are currently being analyzed with the assistance of The Carter Center.

### *Program Coordination*

In 2001, the Mali TCP had not yet solidified the interagency collaboration necessary for a successful program. The national Trachoma Task Force had operational problems and only met once in 2001. Nonetheless, the TCP partners held meetings at least once every quarter.

## **Challenges and constraints**

- Prevention of blindness programs had weak political support from the Ministry of Health, as well as administrative and political authorities.
- Mali's national health policy encourages the integration of health activities at all program levels. Many TCP activities are considered to be vertical.
- Lack of qualified medical and public health personnel.

## **Targets for 2002**

- Assess the quality of trachoma control activities, particularly health education, in all 2,800-target villages.
- Expand scope of health education to include all of the Kayes Region and begin activities in the Sikasso Region.
- Extend azithromycin distribution to two new districts (circles). Increase the number of persons treated to 700,000.
- Increase availability and use of ophthalmic tetracycline ointment.
- Complete the cost-efficiency study of azithromycin distribution strategies.

- Do corrective lid surgery on 5,000 trichiasis patients (20% of the estimated prevalence).
- Investigate causes of low trichiasis surgery uptake.

### **Recommendations**

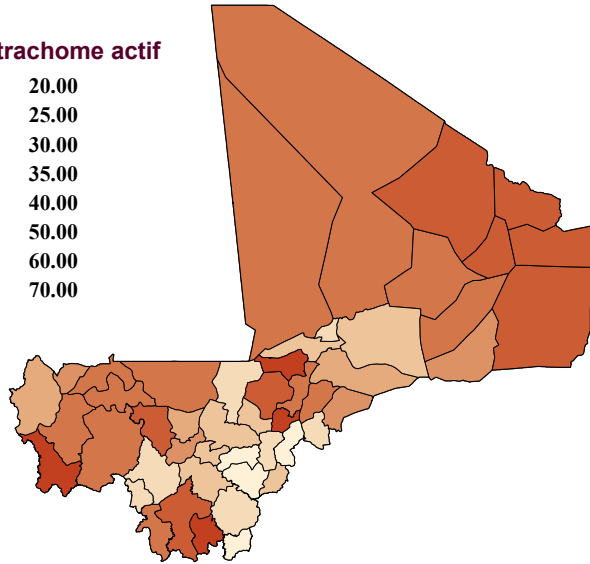
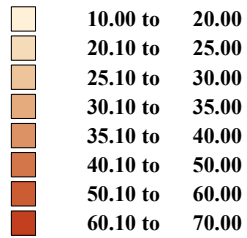
- Finalize the five-year plan of action (2003 –2007) for trachoma control activities.
- Use line listings of trachoma-endemic villages for monitoring of TCP.
- Assess health education activities in trachoma-endemic villages and develop monitoring tools.
- Use Guinea worm volunteers for health education and surveillance activities in all current and former Guinea worm-endemic villages.
- Determine and document the basis for excluding men from antibiotic distribution campaigns.
- Explore possibilities for involving local Lions in trachoma control activities.

# TRACHOME ACTIF PAR CERCLE AU MALI

ENQUETE NATIONALE SUR LE TRACHOME (1996)

Enfants de moins de 10 ans

## Prévalence trachome actif

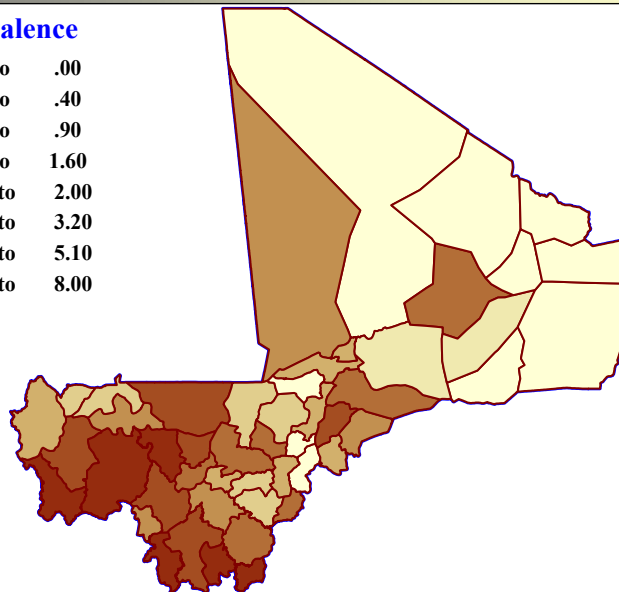
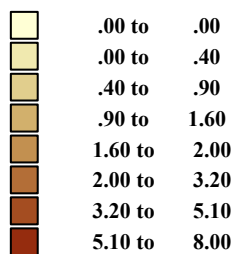


# ENTROPION TRICHIASIS AU MALI

ENQUETE NATIONALE SUR LE TRACHOME (1996)

Femmes de plus de 14 ans

## Prévalence





## **Niger Trachoma Control Program**

*Presented by Dr. Abdou Amza, Director/ADJ PNLCC, Ministry of Health of Niger, and Mr. Salissou Kane, Resident Technical Advisor for the Carter Center/Niger. Carter Center assistance to Niger is funded by the Conrad N. Hilton Foundation.*

### **Background**

Niger's National Blindness Prevention Program was established in 1987. A Trachoma Task Force was formed in 1999 by the Ministries of Health, Education, and Water & Social Development. Representatives of nongovernmental partners, including The Carter Center, local Lions Clubs, Helen Keller International (HKI), Christoffel Blindenmission (CBM), the Niger Association for the Blind, African Muslim Agency, and WHO are also Task Force members.

Surveys done by Niger's National Blindness Prevention Program, with assistance from the European Union and the Carter Center, found that an average of 43.7% of children under 10 years old had active trachoma (TF/TI) and 1.7% of women over 15 years of age had trichiasis. Nationwide, an estimated 68,300 men and women are estimated to need trichiasis surgery. The highest prevalence of trachoma was identified in the Zinder (TF/TI 63%, TT 4%), Diffa (TF/TI 55%, TT 1%), and Maradi (TF/TI 46%, TT 3%) Departments (see maps). Four KAP surveys have been done since 1997. Results from three KAP surveys, done in Zinder, Diffa and Maradi, are available. Data from the most recent KAP survey, done in Zinder by the BBC World Service Trust, are not yet available.

### **Program achievements in 2001**

The Niger Trachoma Control Program (TCP) had many successes in 2001, including the strengthening of partnerships, mobilization of Guinea worm village workers in fighting trachoma, development of improved flip charts covering all aspects of the SAFE strategy, and training of community health workers, public and religious school teachers and masons in trachoma control activities.

#### **Facial hygiene and environmental improvement**

The Carter Center assisted the Niger TCP to implement the F&E components of the SAFE strategy in 276 villages. Health education materials (flip charts, posters, songs, theater and radio programs) have been developed and are currently being used in the field. In three districts of Zinder Department, Magaria, Mirriah and Matameye, 60 masons were trained in how to construct latrines. A school health program was implemented with the assistance of HKI in primary schools, and 104 schoolteachers and 79 traditional koranic (marabouts) teachers were trained to expand the current outreach efforts of the national TCP.

#### ***Antibiotics***

The International Trachoma Initiative (ITI) approved Niger's application for a donation of Zithromax from Pfizer Inc. Distribution of 100,000 treatment doses of Zithromax is planned for Magaria and Matameye Districts in 2002.

### *Surgery*

In 2001, a total of 5,739 corrective lid surgeries were done free of charge, a significant increase over the 700 trichiasis surgeries done in 1999. One hundred and ten nurses were trained to do trichiasis surgeries and were supplied with equipment and consumable. Sixteen nurses were trained as supervisors.

### *Monitoring and Evaluation*

Implementation of a comprehensive system for monitoring and evaluation continues to be a challenge. Line listing for all the trachoma-endemic villages has been developed and is being used in the field (see Table I).

### **Constraints**

- Lack of awareness of trachoma as a multi-sectorial disease
- Partner NGOs financing only parts of the SAFE strategy
- Trichiasis patients fear surgery
- Difficulties in the diagnosis of trachoma
- Lack of consumables and equipment

### **Challenges**

- Inclusion of TCP in Niger's poverty control plan to facilitate acceptance by the government and by communities
- Political commitment to prevention of blindness in the face of multiple health priorities
- Training and equipping the populations themselves to administer eye care
- Developing a comprehensive strategy for monitoring/surveillance, implemented at the district level

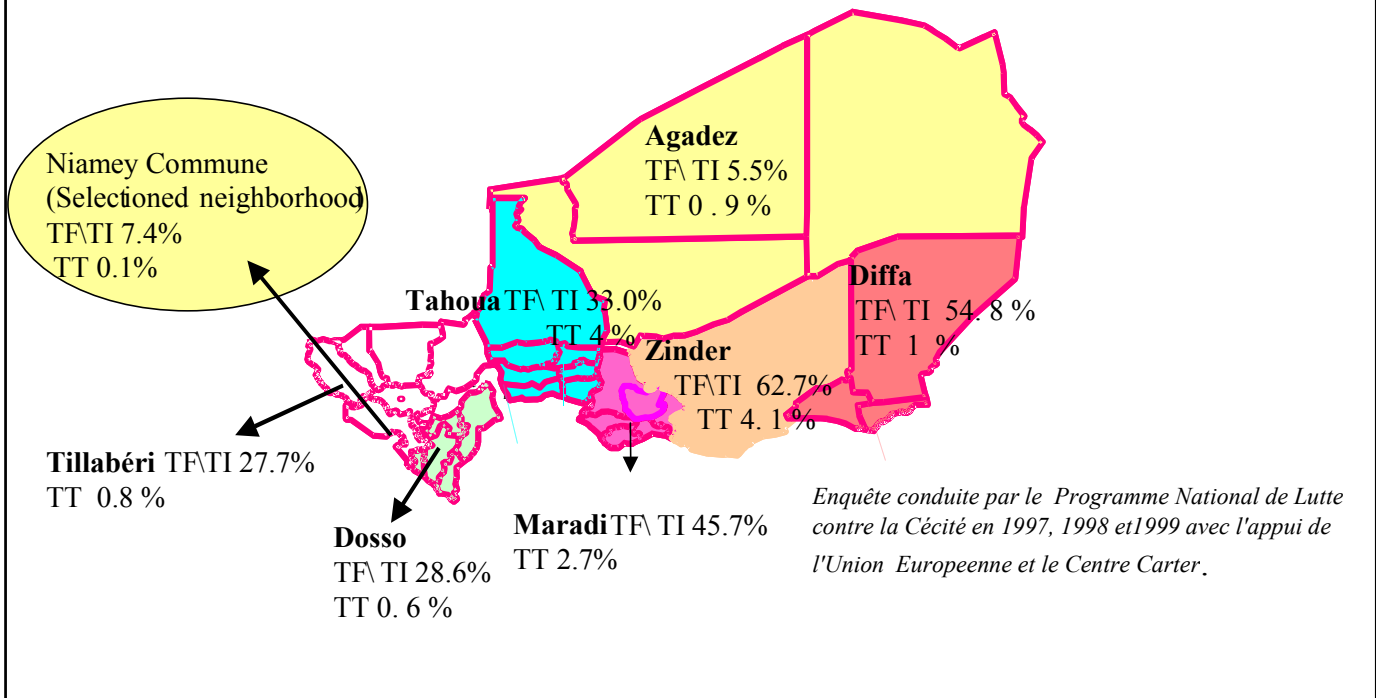
### **Targets for 2002**

- Extend the program to implement the complete SAFE Strategy throughout Diffa and Maradi Departments
- Increase and reinforce monitoring and evaluation through use of line listing and surveys
- Improve health education (with particular emphasis placed on hygiene and sanitation)
- Implement health education in all 276 target villages
- Construct 1,300 household latrines and 10 school latrines
- Provide 50 ox-carts for transportation of water to rural women's associations
- Train 40 rural women's associations on traditional soap production
- Train 425 village-based volunteers, 180 schoolteachers and 160 marabouts on hygiene education for trachoma control activities
- Treat 100,000 persons with azithromycin and 10,000 with tetracycline ointment
- Do 5,000 lid surgeries

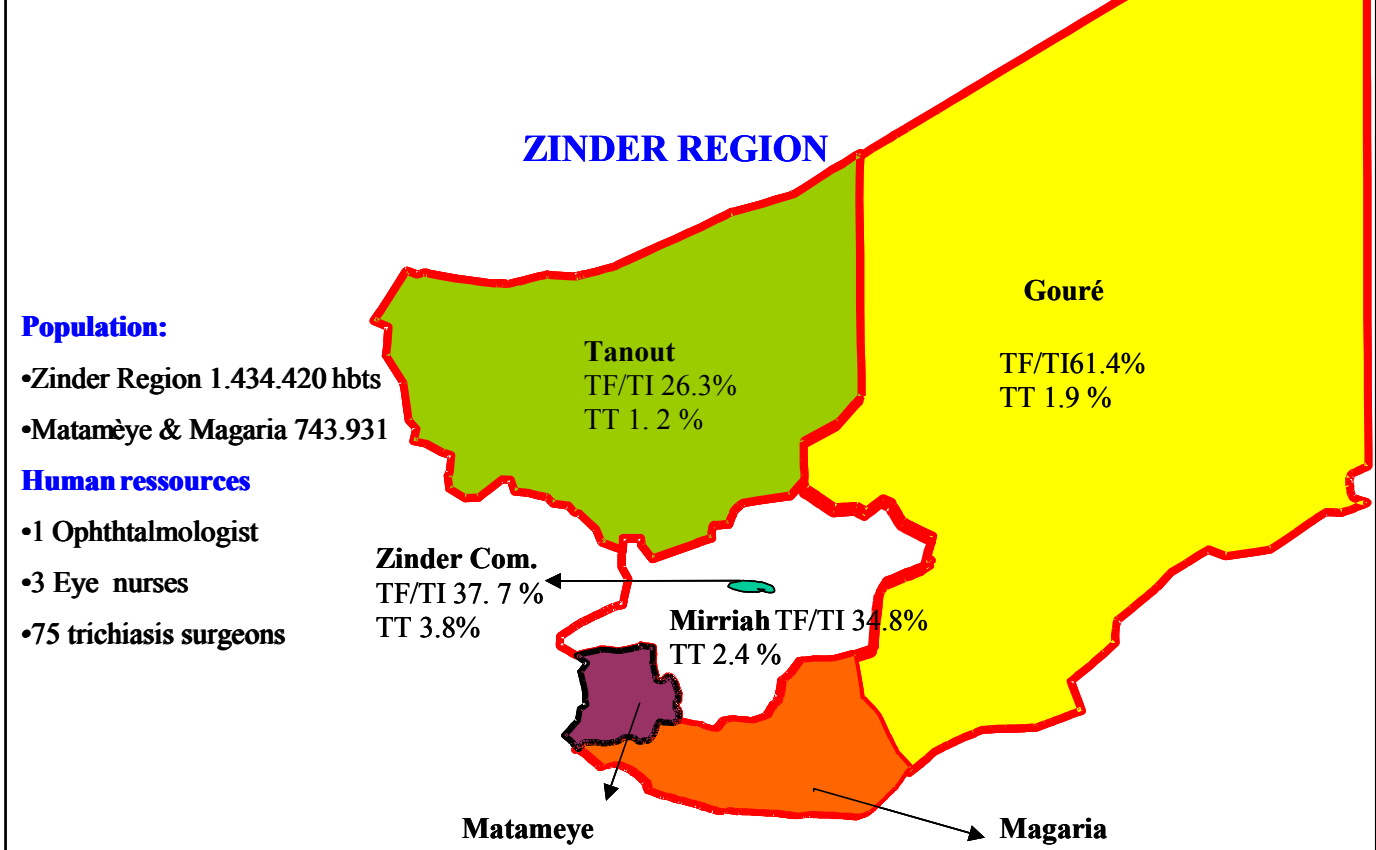
### **Recommendations**

- Develop an action plan for trachoma control activities, including a monitoring and evaluation component with specific targets and benchmarks
- Establish monitoring and surveillance systems for the program
- Explore possibility of involving local Lions to collaborate in trachoma control activities.

**Prevalence of Active Trachoma in Children under 10 and  
Prevalence of Trichiasis in Women over 15**



**Prevalence of Active Trachoma in Children Under 10  
And Prevalence of Trichiasis in Women over 15**



**TABLE I: Line Listing of Selected Communities With Known Active Trachoma in Zinder Region of Niger**

PROGRAMME NATIONAL DE LUTTE CONTRE LA CECITE											
LUTTE CONTRE LE TRACHOME											
REGION: ZINDER			DEPARTEMENT: GOUNDEGARIA			DATE:					
N°	CANTON	CSI	VILLAGES	POP	#AC	#ENS	#MARAB	OPT	AEP	#LATRIN	bre Trich
	BANDE										
		BANDE									
1			ARASOFOUA	2726	2	1			1F- 5PT, 2PM	5	
2			BANDE	2914				1	PM	PM	
3			BANDE BOUG,	1949	2			1	1F-, 1PM	0	
4			LAKIRE	643	2	1			1F-,1PT,1PM	0	
5			MALAN LEKO	435	2				1F-,1PM	0	
	DANTCHIAO										
		DANTCHIAO									
6			DAN NOMAO	244	2				1F+,1PT	6	
7			H. DAWAKI B&K	2083	2				2F+,1PT,1PM	0	
8			KOUNDIRI	281	2				1F+	10	
9			MAILALE	981	2				1F+,2PT	1	
10			ROUAN SARKI	1663	2				1F+,1PT,1PM	2	
11			TCHAMA	683		1		1	1F+,1PT	1	
	DUNGASS										
		DOGODOGO									
12			ANG.GAO	400	2	1			1F+,1PM	4	
13			BOBORI	701	2	1		1	1F-,1PM	8	
14			BOURDODO H&B	1387	2	1			2F+,1PM,2PT	0	
15			DINA	731	2	1		1	1F+,2PT	4	
16			TOUMBI	350	2				1F+,1PT	0	
	DUNGASS										
		DUNGASS									
17			ANG.LILI	1366	2				1F+,3PT	0	
18			ANG.MANDA	999	2				1F+,1PT	0	
19			G.ISSA	900	2				1F-,1PT	5	
20			G.LIMAN	411					2F+,1PT	3	
21			G.MAJA	814					1F+,1PM	5	
22			JAN MAJE B&H	1367	2				2F+,3PT	5	
23			KANASSANE	600	2				1F+,1PM,1PT	0	
24			MAISTAMA	500	2				1F+,1PM	0	
25			TANTIZ.GAGAJA	625	2				2F+,1PT	2	
		KARAM									

## **Sudan Trachoma Control Program**

*Presented by Professor Mamoun Homeida, National Coordinator, Sudan Trachoma Control Program; Mr. Mark Pelletier, Resident Technical Advisor, The Carter Center/Khartoum and Ms. Kelly Callahan, Resident Technical Advisor, The Carter Center/Nairobi, which serves areas of Sudan supported by the OLS consortium. Carter Center assistance to Sudan is funded by the Lions-Carter Center SightFirst Initiative.*

### **Background**

Trachoma has long been known to be an important disease in Sudan, but little specific data other than hospital and clinical records were available until recently. In May 1999, a team from the Sudanese Federal Ministry of Health (FMOH) led by Professor Mamoun Homeida, conducted the first population-based trachoma prevalence surveys in two areas of the country with the technical and financial assistance of The Carter Center. The Conrad N. Hilton Foundation provided funding to The Carter Center for these surveys. One survey was conducted in Wadi Halfa, in the north, and the other in Malakal, in the south. Trachoma previously was believed to be a significant problem only in the north of the country, but the two surveys confirmed that trachoma is a common cause of severe illness and significant blindness in southern as well as northern areas of Sudan.

The survey results, in part, led to the signing later that year of an agreement for the Lions-Carter Center SightFirst Initiative, which includes funding of on-going assistance to Sudan for control of onchocerciasis and trachoma. The three initial partners (FMOH, Lions International, and The Carter Center) then began working with two other nongovernmental organizations (Christian Mission Aid and MEDAIR) in the Operation Lifeline Sudan/South (OLS) consortium to plan a broad trachoma control effort in the country, based on the WHO SAFE strategy. Since tetracycline ointment was found to have a low level of acceptance by the population, a request was made to Pfizer Inc for a donation of Zithromax (azithromycin). In an extraordinary gesture, Pfizer began providing donated Zithromax to Sudan as a part of the International Trachoma Initiative in August 2000.

Sudan is the largest country in Africa and one of the poorest in per capita income. Its vast territory, poor infrastructure, and insecurity, especially in the southern part of the country, are major challenges to all public health work. Sudan has a population of about 30 million persons, of which at least 22 million live in the northern states. Sudan has been wracked by civil war for 34 of the 45 years since it gained independence in 1956. The latest phase of the on-going civil war, the longest lasting war in Africa, has been underway since 1983. Since 1989, humanitarian aid to southern Sudan has been carried out under the aegis of OLS, a consortium of United Nations agencies and over 40 non-governmental organizations. The GOS controls almost all of the northern part of the country as well as some pockets of territory in the south, which is where most of the fighting is on-going.

The Carter Center has been involved in Sudan since 1986, when the Center began an agricultural assistance project that lasted until 1992. Former President Jimmy Carter convened a negotiating session among civil war opponents in 1989, and negotiated a “Guinea Worm Cease-Fire” that

halted the civil war for nearly six months in 1995. President Carter also negotiated an agreement between the governments of Sudan and Uganda in 1999, which led to the restoration of diplomatic relations between the two countries in 2001. The Carter Center has served since 1995 as the lead agency for assisting Guinea worm eradication on both sides in Sudan, and also facilitates coordination of onchocerciasis control efforts between the two sides from its offices in Khartoum and Nairobi. Sudan's Trachoma Control Program is modeled on its Guinea Worm Eradication and Onchocerciasis Control Programs, including the Carter Center's role in helping to coordinate efforts on both sides, despite the war. The Carter Center's involvement as a major partner in these three public health programs in Sudan in turn facilitates its role in attempting to help bring peace to the country.

Leadership of Sudan's Trachoma Control Program (TCP) rests with the national Trachoma Technical Consultative Committee, which was formed in June 1999 as an organ of the Federal Ministry of Health. The committee includes eight technical specialists (among them an epidemiologist/program manager, ophthalmologists, a clinical pharmacologist and a health educator) and a representative of The Carter Center. Activities in GOS-controlled areas are coordinated and monitored from Khartoum by the FMOH with assistance from The Carter Center. Activities in OLS-assisted areas are coordinated and monitored from Nairobi by The Carter Center with assistance from partner NGOs and humanitarian units of the opposition forces. Local committees oversee activities in each of the operational areas. Coordination meetings of the leadership of the GOS and OLS programs are held quarterly to maximize coordination of the national program. Program information from both sides is collected, analyzed, and reported by the Office of the National Coordinator, who represents and speaks for the national program at international meetings.

The Sudan TCP launched its field activities in 2000 with the implementation of the SAFE strategy in the Malakal area. The program expanded in 2001 to additional communities around Malakal (including areas accessed through OLS), Wadi Halfa and Mayo (a displaced persons camp near Khartoum) (see map). In 2001, the Sudan TCP conducted health education activities in 905 villages, treated 115,835 persons with Zithromax donated by Pfizer Inc, and did 1,088 trichiasis surgeries. The program uses a line listing for all of the trachoma-endemic villages to monitor activities in the field (see Table I and Table II).

### **Program Achievements in 2001, Areas served by the Government of Sudan (GOS)**

#### ***Hygiene Education, Face Washing and Environmental Sanitation***

In all of the areas in which the program is working, community volunteers and health care workers have been trained in health education and supplied with materials. The program is conducting operational research to refine its health education program. A qualitative KAP survey, using focus group discussions, was done in Malakal in 2001.

Key findings were:

- Mothers *do not* wash children's faces regularly
- Priority use of water is for cooking and drinking
- Mothers recognize that eye disease affects children more than adults
- Flies are generally considered to be harmful, but
- Flies are *not* associated with eye disease, and

- Mothers report it is “useless to drive flies away”
- Most villagers defecate in open fields
- Snakes make defecation far from home dangerous, especially in evening
- There are no latrines available
- Villagers report that they would use latrines if they were built
- Villagers report that they would assist in building latrines

The KAP survey was followed with a second study, to evaluate the impact of a health education strategy that was done in two villages, Daleib Hill and Obel, over a period of six months in 2001. In May 2001, both villages were surveyed for signs of trachoma and suspected risk factors, after which both villages were treated with Zithromax as part of the mass treatment campaign. Villagers in Daleib Hill were trained and given materials for trachoma control health education. They made household visits and trachoma control education for six months, assisted by Sudan TCP supervisors. Households in Obel did not receive similar health education. Six months later, a second set of surveys were done to measure the impact of the health education strategy on the recrudescence of inflammatory trachoma.

Although the full data analysis is ongoing at this time, a preliminary analysis shows that the study populations had similar levels of inflammatory trachoma and potential risk factors. After six months, children 1-10 years old in Daleib Hill had significantly lower TF/TI than children in Obel (21% compared with 57%, RR=0.37, 95% CI =0.25-0.55). In addition, Daleib Hill respondents reported that face washing there increased by 10% and TF/TI decreased by 36%. In Obel, with no health education, face washing decreased by 11% and TF/TI decreased by 12%.

#### *Surgery*

In 2001, only 122 surgeries to correct trichiasis were done by the Sudan TCP. Surveys in Malakal, Wadi Halfa, and Renk suggest that the backlog of uncorrected trichiasis is over 11,000, as shown in the table below.

Area	Population	Population 15+	% TT	TT 15+
				TT burden
Malakal	170,000	93,500	7.3%	6,826
Wadi Halfa	75,000	41,250	1.9%	784
Renk	48,000	26,400	13.2%	3,485
<b>Total</b>	<b>293,000</b>	<b>202,400</b>		<b>11,095</b>

In recognition of the urgent need establish a sustainable surgical component, the Sudan TCP has negotiated with potential partners for surgical training and supplies. The success of the program in delivering Zithromax to rural populations, as well as the longtime success of the national onchocerciasis control program and cataract eye camps, helped convince partners to join the Sudan TCP. The Academy of Medical Science and Technology will assist in training TT surgeons, and both Help Age and CBM have made commitments to support trichiasis surgery in GOS-supported areas of Sudan, beginning in 2002.

#### *Antibiotics*

Due to the high prevalence of active trachoma throughout the target areas, mass treatment

campaigns have been adopted as the primary strategy for rapidly reducing inflammatory trachoma. In addition to treating patients and reducing trachoma transmission, the donation of Zithromax by Pfizer and the ITI has been recognized as the key to the program's entry into rural communities. Health education and social mobilization activities were launched in association with mass treatment campaigns. In 2001, a total of 85,674 persons were treated with azithromycin in GOS-supported areas, a 118% coverage rate of the estimated target population (see map).

### **Targets for 2002**

The Sudan TCP will

- Do health education activities in all 102 villages/sectors of the three provinces
- Train 73 supervisors and 392 volunteers in trachoma control activities
- Treat 287,000 people with azithromycin
- Provide tetracycline eye ointment to health facilities and Sudan TCP workers
- Do 3,000 lid surgeries in fixed health facilities
- Organize and facilitate surgical camps to reach trachoma-endemic rural populations

### **Program Achievements in 2001, Areas served by OLS**

#### *Hygiene Education, Face Washing and Environmental Sanitation*

Preliminary assessments in areas of Sudan supported by the OLS consortium of NGOs in 2001 suggest that there is poor facial hygiene. Facial cleanliness in children 1 to 9 years old was 35.2% in Lankien, 19.5% in Oriny, 48.5% in Tali, and 70% in Katigiri. Data show that there are few, or no latrines and less than adequate water infrastructure in the NGO partner locations. Latrine coverage was nil in Lankien, Oriny and Tali; Katigiri district had latrine coverage of 22% (77/350 households).

Comprehensive trachoma health education was done in Lankien, Keew, Oriny and Kiech Kuon. Health education materials include a flip chart illustrating all the components of the SAFE strategy and a T-shirt encouraging the regular washing of children's faces (see Figure I). In 2001, health education was delivered to the villages during community outreach in Lankien, Keew Oriny and Kiech Kuon. The azithromycin distribution and the surgery camps also provided additional avenues for delivering health education to the communities.

#### Summary of Health Education activities 2001

<b>Location</b>	<b>Number of Target Villages</b>	<b>Villages Received Health Education</b>	<b>% of Villages Received Health Education</b>
<b>Lankien</b>	376	111	30%
<b>Keew</b>	372	272	73%
<b>Oriny</b>	47	20	43%
<b>Kiech Kuon</b>	17	3	18%
<b>Total</b>	<b>812</b>	<b>406</b>	<b>50%</b>



In 2001, ADRA constructed 18 pit latrines in Kiech Kuon of which 6 are reported to have collapsed. MEDAIR has continued to promote burying of feces as an alternative to pit latrines. CMA has developed a model latrine project as a way of mobilizing the communities to construct and use pit latrines. It is clear that the Sudan TCP is in the learning phase of this challenging aspect of the SAFE strategy.

### *Surgery*

Since 1998 CBM has been doing eye surgery campaigns in different locations in OLS-accessible areas. On average, 5 surgical campaigns are done each year. CBM has now conducted trichiasis surgery campaigns in Ikotos, Paluer, Padak, Akobo, Lankien, Keew and Oriny. Despite CBM efforts, the reported backlog of TT surgeries is large. The NGO partners serve an estimated population of 530,800 and the TT backlog is estimated to be over 31,000 patients. Strategies will be implemented to increase the capacity of the partner NGOs in clearing the TT backlog in 2002-2003. In 2001, a total of 966 trichiasis surgeries were done, 71% of which were done with CBM's assistance.

### *Antibiotics*

Population-based prevalence surveys done in Oriny, Lankien, Tali and Katigiri have all shown very high rates of TF/TI in children 1 to 9 years old (Lankien 54%, Oriny 59%, Tali 71% and Katigiri 50%). Therefore, the Sudan TCP adopted a strategy of mass treatment with azithromycin to treat active trachoma and reduce transmission. Pilot mass treatment campaigns were carried out in Lankien, Keew and Oriny in 2001.

<b>Location</b>	<b>Population at Risk</b>	<b>Persons treated (2001)</b>	<b>Target (2002)</b>
<b>Lankien</b>	100,000	16,024	20,000
<b>Keew</b>	45,000	8,874	10,000
<b>Oriny</b>	35,000	5,263	10,000
<b>Total</b>	180,000	30,161	40,000

Tetracycline ointment has also been provided in sufficient amounts to treat persons who do not qualify to receive azithromycin (especially infants). In locations where azithromycin distribution has not started, tetracycline ointment has been provided for routine individual treatment through existing PHC facilities. Extensive efforts are needed to ensure proper use of tetracycline ointment.

### **Monitoring and Evaluation**

Line listing for all of the trachoma-endemic villages has been developed and is being used in the field (see Table II).

### **Targets for 2002**

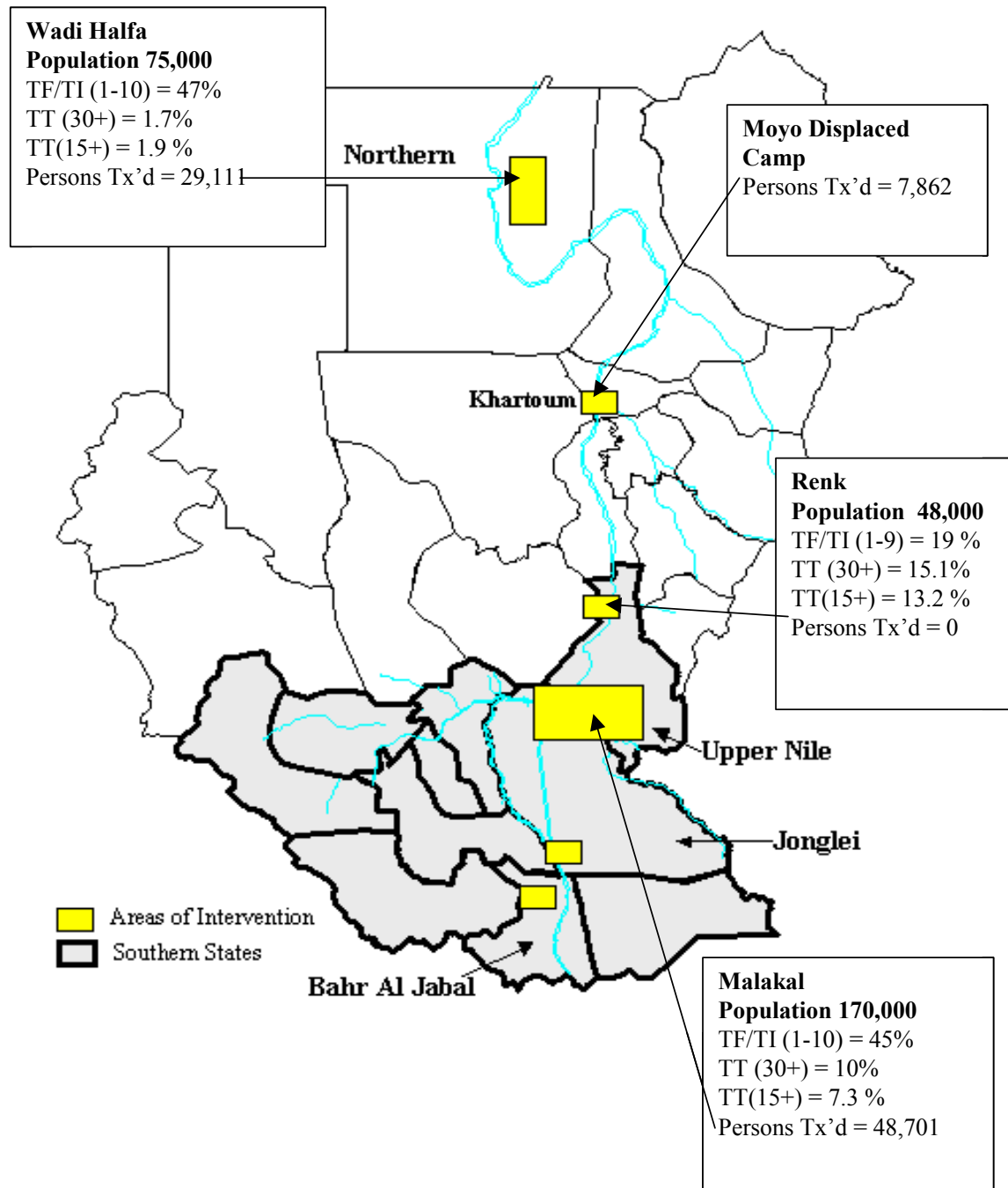
- Conduct prevalence surveys in Padak/Paluer, Kiech Kuon, Keew, and Ikotos
- Do KAP surveys in Keew, Kiech Kuon, and Tali
- Establish ongoing health education activities in all 1,617 target villages
- Increase household latrine coverage to 15% (35% in Katigiti)

- Treat 40,000 persons with azithromycin and provide tetracycline ointment as needed
- Train surgeons in all program areas
- Do five surgery campaigns
- Do 17,100 trichiasis surgeries

### **Recommendations**

- Map trachoma villages in OLS served areas
- Standardize F&E messages
- Adapt posters for F&E messages to the majority of people who do not know how to read or write.
- Carry out monitoring and evaluation activities with the involvement of beneficiaries
- Use concrete (to be provided) in the construction of latrines -- especially in areas where the water tables are high and latrines may collapse

## Sudan Trachoma Control Program Prevalence and 2001 azithromycin treatment data



**TABLE I: Sudan Trachoma Control Program Line Listing 2001  
(Government of Sudan controlled areas)**

Sudan Trachoma Control Program TF Prevalence: 1-9  
 Line listing of Villages TT Prevalence: women > 40  
 Name of Province Milakia Year 2001  
 Name of Council Milakia

	Villages	County locality	Population	S				A			F			E		
				Number cases of TT Identified or estimated	Number cases of TT Targeted 2001	Number of Lid (TT) Surgeries Conducted	Percentage of target cases who received Surgery	Eligible	1st dose 2001	1st dose Tx rate	% children w/ clean faces	#HE sessions	#trained Health volunteers	#existing toilets/ latrines	#of new toilets/ latrines	#existing safe sources water
1	Amy Barracks	Mickria	760					684	617	90.20%						
2	Attar		1,450					1,305		0.00%						
3	Baitay & Airport	Milakia	578					520	353	67.86%			4			
4	Bam East	Bam	1,778					1,600	1,648	102.99%			1			
40	Tarawa West	Mickria	1,151					1,036	1,010	97.50%			1			
41	Television	Mickria	1,743					1,569	1,260	80.32%						
42	Wojok		425					383		0.00%						
43	Zandi East	Milakia	2,382					2,144	1,099	51.26%			3			
44	Zandi West	Milakia	789					710	366	51.54%			4			
	Total		11,056					4,109	6,353	154.60%			-	13		

Surgery

TT estimates USE Survey Estimated 15 and above at 55% of total population

TF/II greater than 20% in 1-9 years olds requires mass tx

TF alone ultimate goal

TF/II greater than 15-20% in 1-9 years olds requires target tx

Antibiotics

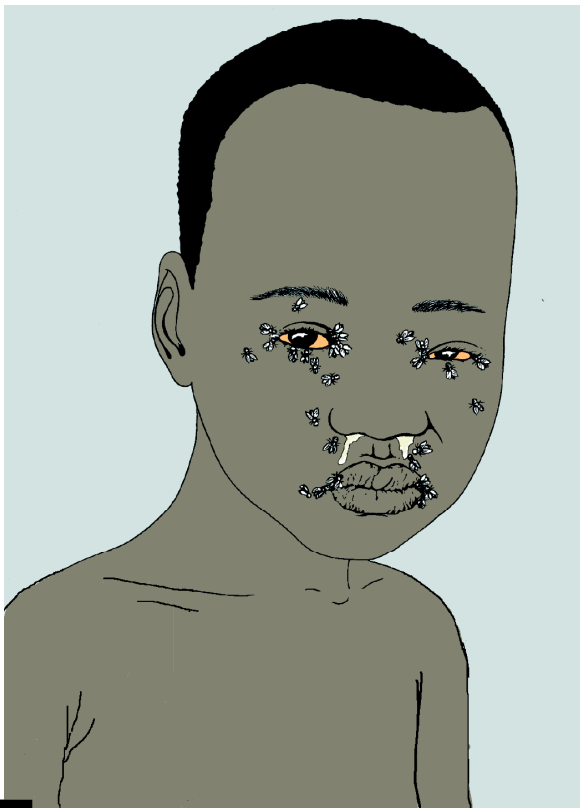
Using 90% of total Population

**TABLE II: OLS/S Sudan Trachoma Control Program Line Listing 2001  
(OLS/S – accessed areas)**

NGO	DISTRICT	TARGET VILLAGES	POPULATION SERVED BY NGOs	HOUSEHOLDS	% T/II	% TT	% CLEAN FACES	VILLAGES RECEIVED HEALTH EDUCATION	VILLAGES WITH ACCESS TO SAFE WATER SOURCE	% HOUSEHOLDS WITH LATRINES	PERSONS RECEIVED SURGERY	PERSONS TREATED WITH ZITHROMAX	OCULAR TETRACYCLINE AVAILABLE
<b>Locations supported by Global 2000 of The Carter Center in 2001</b>													
CMA	LANKIEN	376	100,000		54.2%	24.5%	35.2%	111		0%	132	16,024	Y
CMA	KEEW	372	45,000	20,658				272		0%	153	8,874	Y
MEDAIR	ORINY	47	35,000		58.9%	23.6%	19.5%	20			18	5,263	Y
ADRA	KIECH KUON	17	42,000	7,056				3	3	0%	0	0	Y
<b>Additional proposed Locations to be supported by Global 2000 of The Carter Center in 2002/3</b>													
ZOA	TALI	213	55,000	9,821	72.6%	8.5%	48.5%	0		0%	0		Y
ZOA	KATIGIRI	200	65,000		50.0%	3.1%	70.0%	0		23%	0		Y
ACROSS	PALUER	141	140,000	36,931					77		202		Y
MEDAIR	PADAK	251	48,500	36,931							0		Y
<b>Other Locations NOT supported by Global 2000 of The Carter Center</b>													
MEDAIR	MOBILE RESPONSE										295		
MEDAIR/WRI	POCHALLA										42		
SMC	PANYAGOR										124		

FIGURE I

## OLS/S Sudan Trachoma Control Program Health Education Flip Chart



**F**ACIAL CLEANLINESS

## **Ethiopia Trachoma Control Program**

*Presented by Mr. Teshome Gebre, Resident Technical Advisor of The Carter Center/Ethiopia. Carter Center assistance to Ethiopia is supported by the Lions-Carter Center SightFirst Initiative.*

### **Background**

Blindness in Ethiopia (population 64 million) is thought to be the highest in the world. The prevalence of blindness is estimated to be about 1.5% (> 960,000 persons) and six million Ethiopians suffer from low vision. National estimates suggest the two major causes of blindness are cataract (40%) and trachoma (30%). Trachoma is a major public health problem in all regions of the country. Although a nationwide survey has not yet been done, the MOH estimates about one million Ethiopians live with trichiasis (TT) and ten million have active trachoma (TF/TI). In 1981, a WHO-sponsored survey suggested that trachoma was the leading cause of blindness in the country (42% of blindness due to trachoma). Other regional studies have also shown that trachoma is a major health problem in many parts of the country. In 2000, the Amhara Regional Health Bureau and the International Centre for Eye Health (ICEH) did a trachoma rapid assessment of 11 villages in the South Gondar Zone. Although rapid assessments do not give prevalence data, the percent of sampled children with TF/TI ranged from 34%-58% and the percent of persons with TT ranged from 0.9% to 3.9%, which is consistent with prevalence survey data throughout Ethiopia.

In October 2000, The Carter Center, with funding from the Lions-Carter Center SightFirst Initiative, agreed to work on trachoma control in the Amhara Region. As a result of discussions with the National Prevention of Blindness Team leader and staff from the Amhara Regional Health Bureau, four districts (Simada, Dera, Estie and Ebinate) in the South Gondar Zone were selected as project sites (see map). The program area includes 157 sub-districts with a total population of 1,009,327.

Following the agreement, the Amhara Regional Health bureau and the Prevention of Blindness Team of the Ethiopian Ministry of Health, and The Carter Center did a community-based prevalence survey and knowledge, attitudes and practices (KAP) survey to obtain baseline information on the extent of the disease and to understand communities' perceptions and attitudes regarding trachoma in four districts in South Gondar Zone. Overall, the prevalence of active trachoma (TF/TI) among children ages 1-10 years was 88% and represents some of the highest numbers of active trachoma found in Ethiopia. The prevalence of trichiasis (TT) among women  $\geq$  40 years old was 20%, far exceeding the WHO threshold of greater than one percent, above which trachoma is considered a serious public health problem (see graphs I & II). The findings of the KAP survey were then used for developing health education materials.

A program-planning workshop in Bahir Dar brought together staff from the regional, zonal and district health bureaus. Nongovernmental partners at the workshop included Lions/Ethiopia, The Carter Center, ORBIS, World Vision and Christoffel Blindenmission (CBM). A plan of action for the Trachoma Control Program in South Gondar Zone for 2001-2005 was drafted. The plan includes the following objectives.

#### *Facial hygiene and environmental improvement*

- To increase community knowledge, attitudes and practices pertaining to trachoma prevention.
- *To increase community prevention of trachoma by*
  - *Increasing access to latrines to about 25%*
  - *Increasing clean faces among children ≤ 10 years old to about 80%*
- To advocate for improving access to safe water to about 25%

#### *Surgery*

- To reduce prevalence of trichiasis from 7% to less than 1% among population 15 years old and above by the end of 2005
- To do 36,000 trichiasis surgeries by the end of 2005
- To improve districts' capacity and increase community members' access to surgery by training 2 TT surgeons per district and supplying trichiasis surgery sets (four per district) to do trichiasis surgeries at the district health center.

These objectives will be implemented through trichiasis surgery camps and at health centers.

#### *Antibiotics*

- To reduce the prevalence of active trachoma from 88% to less than 20% by the end of 2005 among children 1-10 years old.
- To increase community members' access to tetracycline ointment or azithromycin.

### **Program Achievements in 2001**

The first step in the implementation process was the recruitment and assignment of a qualified project coordinator at zonal level. An experienced ophthalmic nurse was transferred to South Gondar Zone to become the coordinator of the South Gondar TCP. In February 2001, workers at the prevention of blindness workshop adopted "MAMENE", as the Amharic acronym for "SAFE".

#### *Facial hygiene and environmental improvement*

A health education workshop was organized to develop health education activities. Production of health education materials for the initiation of the program interventions has started. Posters, flip charts, children's books and pamphlets were developed. In addition, a school health curriculum for primary school was designed and the WHO manual 'Achieving Community Support for Trachoma Control' was translated and adapted into the Amharic language for community health workers and others.

#### *Surgery*

Eight health care workers from the four district health centers were trained by the regional ophthalmic surgeon to do corrective eyelid surgery. The training also included other important aspects of primary eye care and the SAFE strategy. The Carter Center supplied fifty trichiasis surgery kits, suture materials and other necessary supplies. A total of 241 persons received TT surgeries during the routine outpatient services in 2001. To reduce the backlog of trichiasis cases

in the project area, surgical campaigns (eye camps) were organized and done in two of the four districts. In 2001, a total of 601 patients had corrective trichiasis surgery. The Carter Center also assisted local Lions Clubs to prepare a grant proposal to the Lions' SightFirst program to support additional trichiasis surgery camps. The grant proposal was submitted to Lions headquarters.

#### *Antibiotics*

In 2001, 50,000 tubes of tetracycline eye ointment were distributed through health facilities and outreach programs. ORBIS, World Vision International and The Carter Center worked with the ITI to advocate for a donation of Zithromax (azithromycin) from Pfizer Inc.

#### **Targets for 2002**

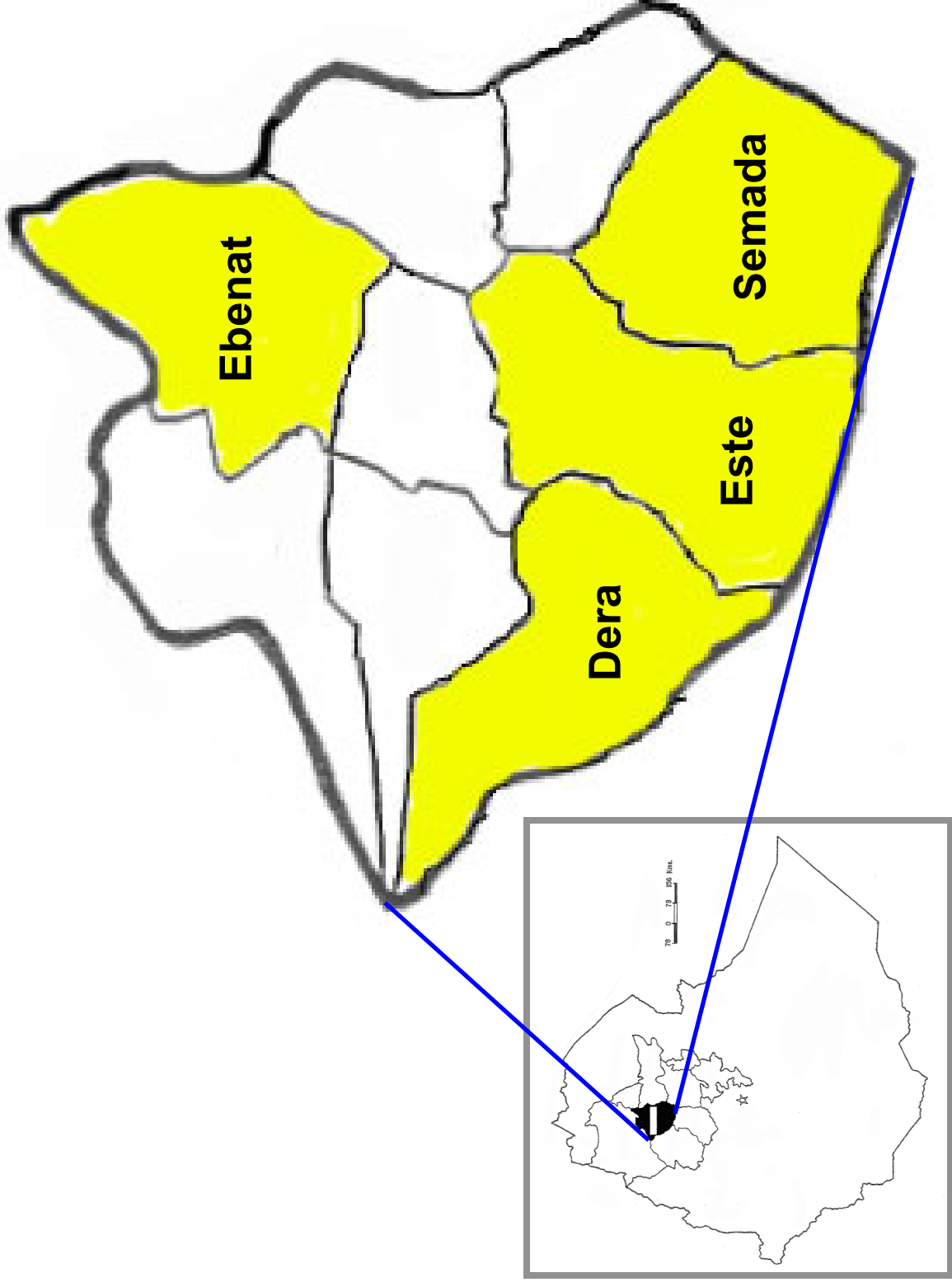
- Train health workers, school teachers and volunteers in all trachoma-endemic villages on trachoma control and prevention
- Implement health education strategies in at least 75% of the 157 target villages
- Build 2,400 demonstration latrines
- Treat 100,000 persons with azithromycin and provide tetracycline ointment as necessary
- Train eight trichiasis surgeons and do 6,000 trichiasis surgeries

#### **Recommendations**

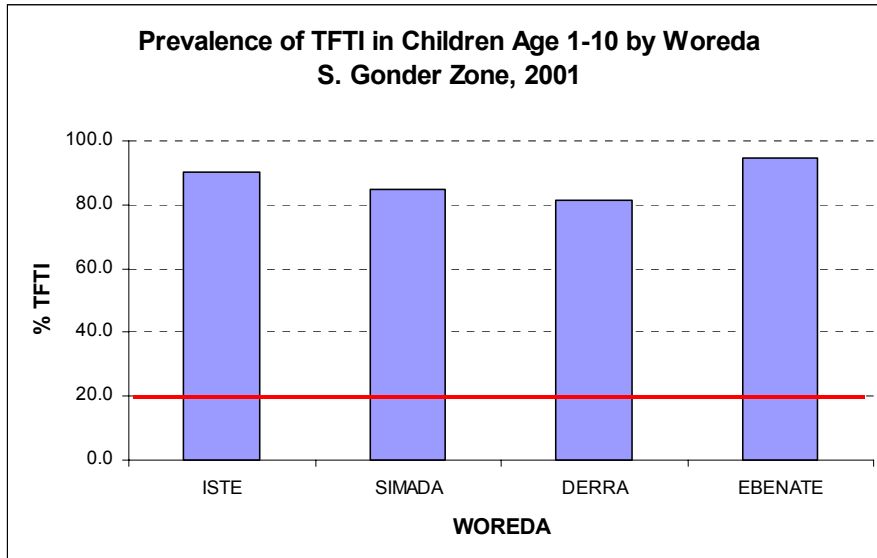
- Implement the entire SAFE strategy in all targeted trachoma-endemic villages
- Establish a sustainable monitoring and evaluation system and begin collecting line listing data



# Ethiopia Trachoma Control Program South Gondar Zone, Amhara Region

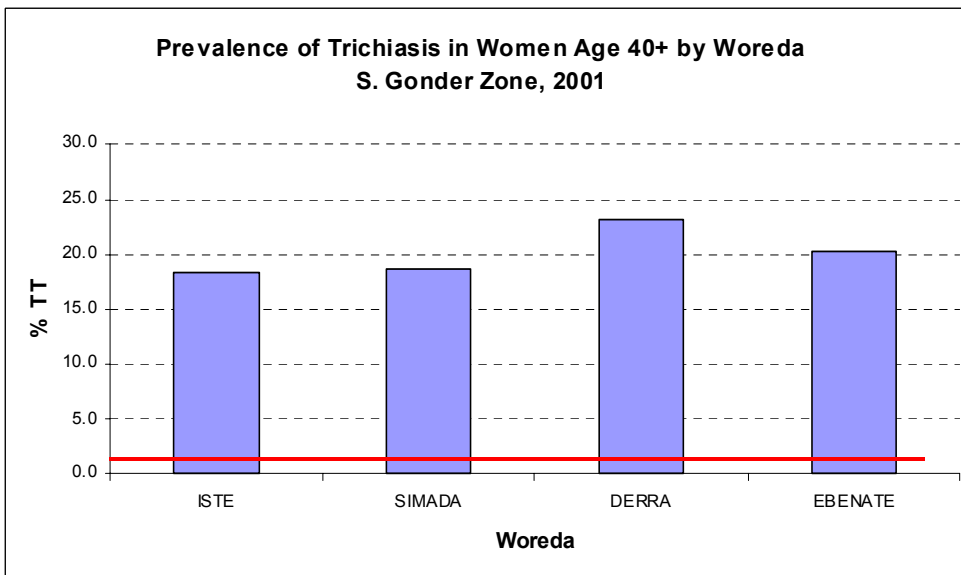


## GRAPH I



**Prevalence of TFTI above 20% (solid line) is considered to be a serious health problem by the World Health Organization.**

## GRAPH II



**Prevalence of TT above 1% (solid line) is considered to be a serious health problem by the World Health Organization.**

## **Nigeria Trachoma Control Program**

*Presented by Dr. Nimzing Jip, Desk Officer for Trachoma, The Carter Center, Nigeria. The Carter Center assistance to Nigeria for trachoma is supported by the Conrad N. Hilton Foundation.*

### **Background**

A national population-based trachoma prevalence survey has not yet been done in Nigeria. A review of existing hospital data, university dissertations and anecdotal reports suggests that trachoma is a significant cause of blindness in the Northeastern and Northwestern Zones of Nigeria (see map). The only statewide population-based trachoma prevalence surveys done to date were done by the Ministry of Health, sponsored by Helen Keller International (HKI) in Borno (October 2000) and Adamawa (March 2001) States. The Carter Center/Nigeria assisted with the data analysis. These surveys found that trachoma is a significant public health problem, based on the standard WHO criteria, in Borno State. In Adamawa State, which is located south of Borno State, blinding trachoma appears to be less of a problem, which is consistent with other data.

Nigeria does not yet have a national trachoma control program. At the moment trachoma control is under the auspices of the National Blindness Prevention Committee. The National Coordinator of the National Blindness Prevention Committee is the coordinator for trachoma control programs. In 2000, The Carter Center/Nigeria began working with state and local health authorities to build trachoma control programs in Plateau and Nasarawa States, where they are already supporting Guinea worm eradication and onchocerciasis, lymphatic filariasis and schistosomiasis control efforts.

### **Program Achievements in 2001**

In June 2001, The Carter Center put forward a proposal to form a national trachoma control program. The first meeting of interested parties was held on December 10<sup>th</sup> 2001 at The Carter Center's national office in Jos. The chairman of the National Program for the Prevention of Blindness represented the Federal Ministry of Health. International NGOs in attendance were Helen Keller International, Christoffel Blindenmission (CBM), SightSavers International (SSI) and The Carter Center. CBM has done trachoma control work for several years in the northeastern part of the country with an emphasis on trichiasis surgery. SightSavers' support to the National Eye Center in Kaduna has included training of ophthalmic surgeons to correct trichiasis, provision of health education materials and administrative support for the Blindness Prevention Committee.

In 2001, the following activities were undertaken towards the creation of the statewide trachoma control programs in Plateau and Nasarawa States:

- Advocacy visits to all the Local Government Areas (LGA) in Plateau and Nasarawa States
- Preliminary control teams set up at both state and local government levels
- TCP management training module drafted and reviewed

- A population-based prevalence survey designed, questionnaires printed and data entry program created
- Prevalence survey teams trained in both Plateau and Nasarawa States

*Monitoring and Evaluation -- Development of indicators*

Outcome and process indicators to monitor and evaluate the program have been established.

**Outcome** indicators:

- Prevalence of TF in children 1-9 yrs of age
- Prevalence of TT in people >40 yrs of age
- Number of children with dirty faces

**Process** indicators:

**S**

- Total number of patients referred for surgery the previous year or total number of surgeries done.
- TT surgical coverage
- Outcome of surgery (recurrence rate)

**A**

- Total number of patients treated with antibiotics during the previous year
- Antibiotic coverage

**F**

- % of children 1-9 yrs of age with clean faces

**E**

- % of population with access to water within 1 km or 30 minutes travel time
- % of households using covered latrines

A supervision schedule has been established for the state programs in which supervisory visits are made at all levels, from the national to the village level, at least once per month.

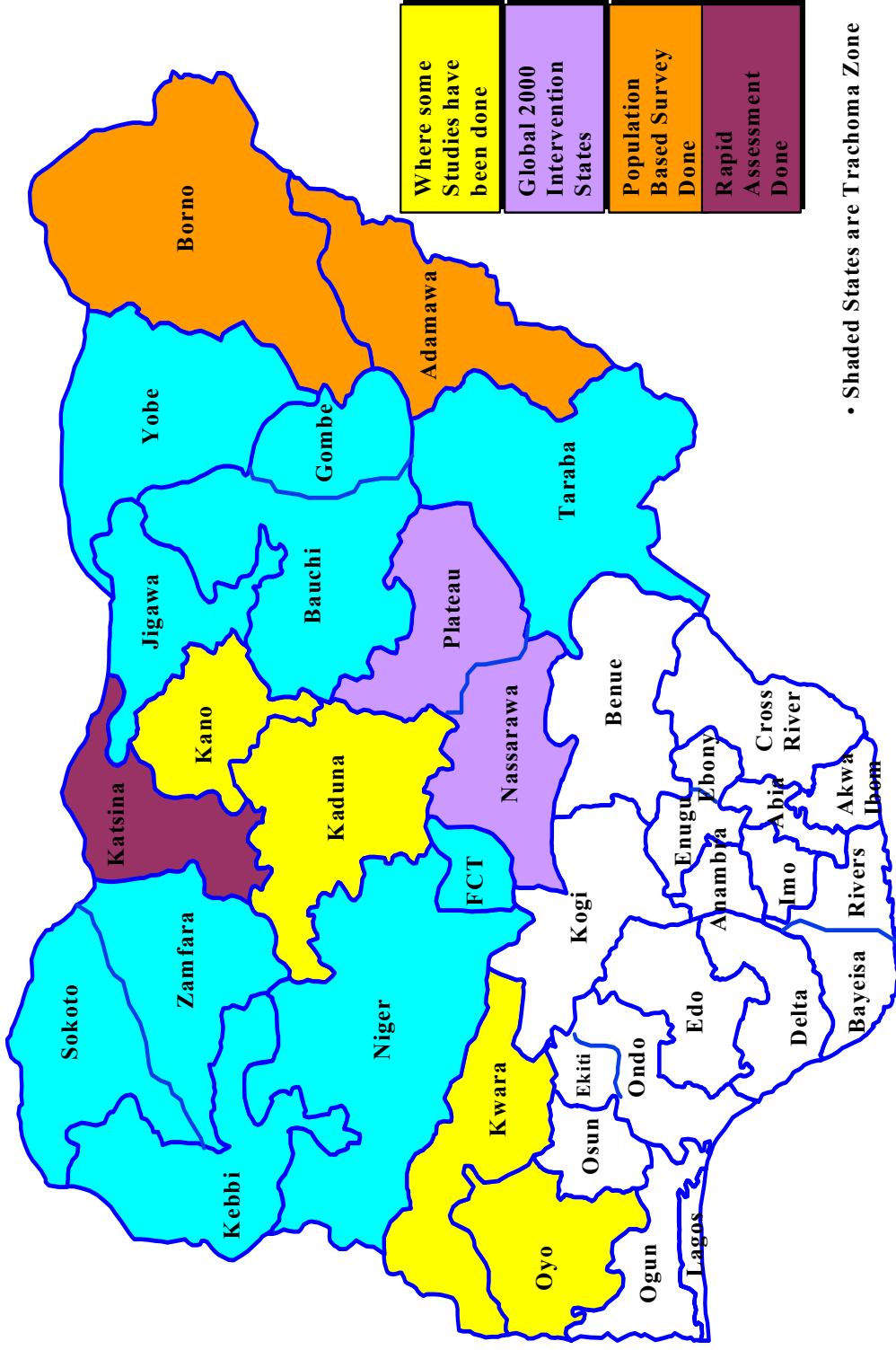
**Targets for 2002**

- Complete population-based surveys in Plateau and Nasarawa states
- Do KAP surveys in communities where program will begin, and use results to develop appropriate health education strategies and materials.
- Complete management training modules and use them to train the trachoma teams at all levels
- Begin health education activities in 100 trachoma-endemic villages
- Assist in provision of safe water and latrines in 20 villages
- Assist in making tetracycline ointment available in 300 villages

**Recommendations**

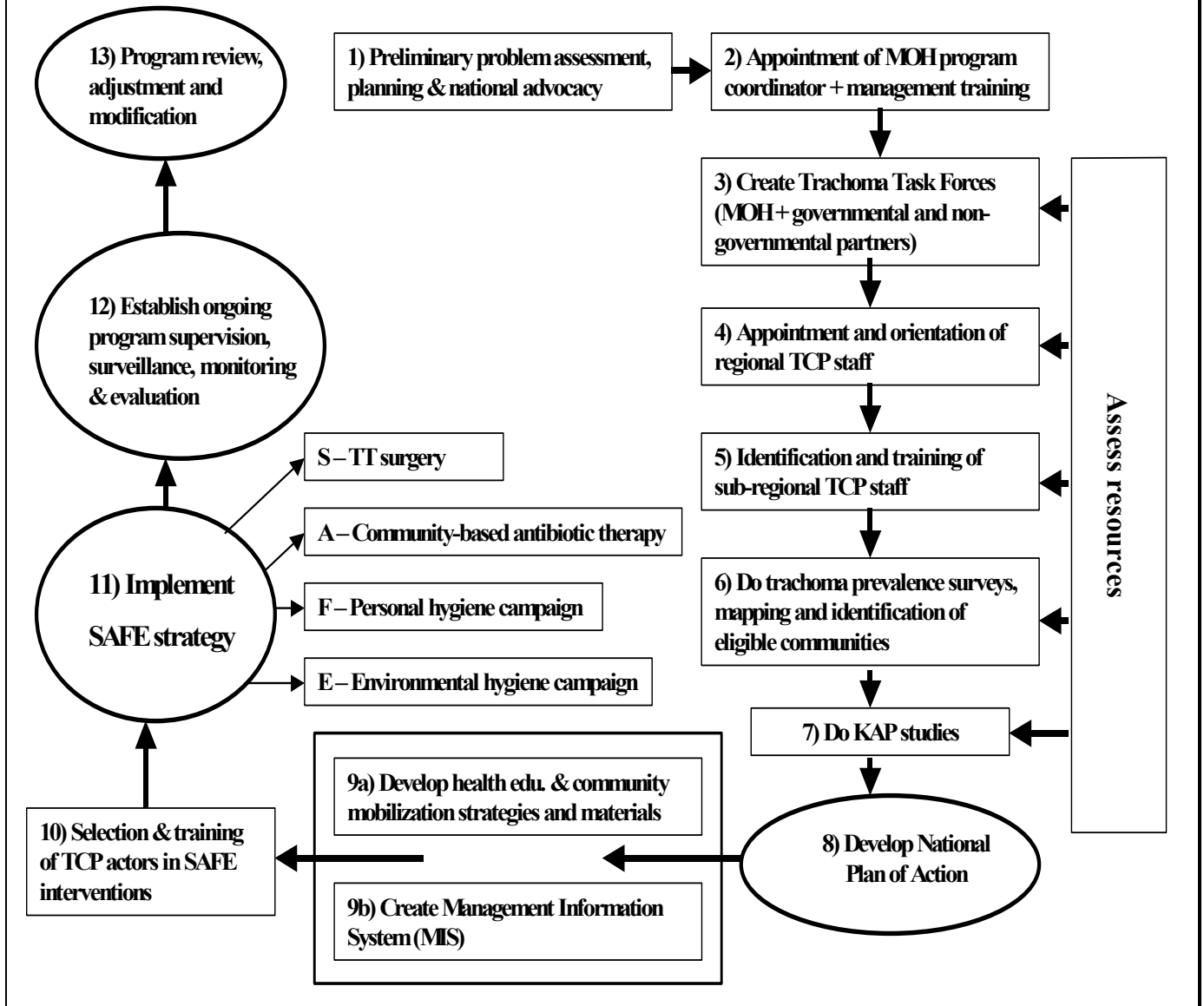
- Complete prevalence and KAP surveys in Plateau and Nasarawa States
- Launch TCP interventions in selected endemic villages

# Map of Nigeria Showing Trachoma Distribution



• Shaded States are Trachoma Zone

# Key Steps in National Trachoma Control Program Management



## General Recommendations (not country specific)

### *F&E*

- Partners should be more involved in promoting water supply and sewage disposal projects as part of the overall SAFE strategy.
- Strategies should be developed to reduce fly populations.
- Latrine provision should be incorporated into the “E” component of SAFE.

### *Surgery*

- National programs should pursue the training of ophthalmologists.

### *General relations*

- National programs should remember that it is *their* responsibility to coordinate partner organizations’ interventions to assure that the full SAFE strategy is implemented in trachoma-endemic communities. Because it is not possible for each partner organization to do *all* of the SAFE interventions, this will necessitate coordinating activities of multiple partners.
- Programs should involve *local* NGOs in trachoma program activities as often as possible.

### *Surveillance, monitoring and evaluation*

- Efforts should be made to standardize data collection forms and drug distribution monitoring systems within each national program, and between countries wherever possible. This would facilitate evaluation and management of international efforts.
- National programs should prepare monthly activity reports. These reports should be made available to partner organizations through the trachoma task force.
- In developing process indicators for the “F” component of SAFE, references to flies on faces should be removed, as this will vary based on time of day, and does not correlate with true facial cleanliness.
- Surgical outcomes should be monitored. At the time of surgery, tracing details, visual acuity, name of operator, date of surgery, antibiotics given at time of surgery, and any other details deemed necessary should be recorded in the surgeons’ logbooks. These data can then be abstracted at a later date and correlated with surgical outcomes.
- Severe adverse events associated with antibiotic treatment or surgery, antibiotic resistance and indirect impacts of trachoma treatment on other communicable diseases should be monitored over time.

## Summary Tables and Graphs Trachoma Control Programs Status





## Trachoma Control Program Annual Targets 2002

Carter Center-assisted Trachoma Control Programs

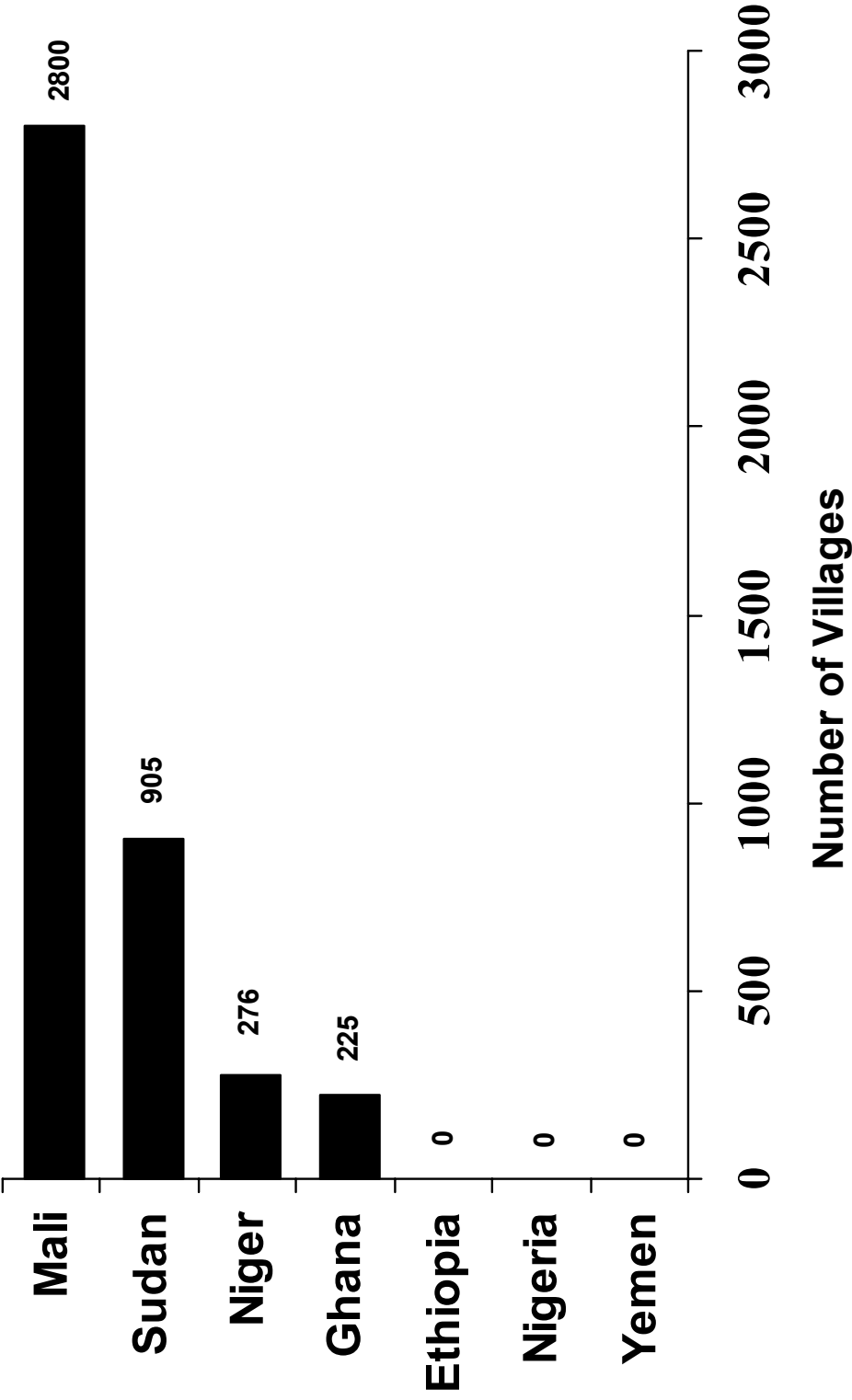
	Ghana	Mali	Niger	Sudan		Ethiopia S. Gondar	Nigeria 2 states	Yemen
				GOS	OLS/S			
<b>F &amp; E</b> target villages:	<b>280</b>	<b>2,800</b>	<b>276</b>	<b>102</b>	<b>1,617</b>	<b>157</b>	<b>100</b>	-
Health education	280	2,800	276	102	1,617	157	100	-
Latrine provision	300	-	1050 HH	15% HH	15% HH	2,400 HH	20 Villages	-
Water provision	30	-	121	40% HH	-	-	20 Villages	-
<b>Antibiotics</b>								
<b>Azithromycin</b> target villages:	<b>280</b>	-	<b>72</b>	<b>102</b>	<b>1,617</b>	<b>18</b>	-	-
Mass treatment	100,000	700,000	100,000	287,000	40,000	100,000	-	-
Targeted treatment	-	-	-	-	-	-	-	-
Total	100,000	700,000	100,000	287,000	40,000	100,000	-	-
<b>Tetracycline Oint.</b> target villages:	<b>280</b>	-	<b>286</b>	<b>102</b>	-	<b>157</b>	<b>300</b>	-
Treatments	8,000	300,000	-	-	-	-	-	-
<b>Surgery</b> target villages:	<b>280</b>	-	<b>286</b>	-	-	-	-	-
Routine (health center-based)		5,000	5,000	3,000	500	-	-	-
Outreach campaigns (Eye Camps)	500	0	-	-	1,200	6,000	-	-
Total	500	5,000	5,000	3,000	1,700	6,000	-	-
<b>Monitoring, Eval. &amp; Surveillance</b>								
Prevalence survey (regions)	-	-	-	10	4	-	2	16
KAP survey (regions)	-	-	-	3	3	-	2	16
Establish surveillance (regions)	2	3	3	3	4	1	2	-

HH indicates households; "-" indicates that the program has not set goals; N/A indicates data do not apply

# Number of Villages Receiving Hygiene Education

Carter Center-Assisted Trachoma Control Programs

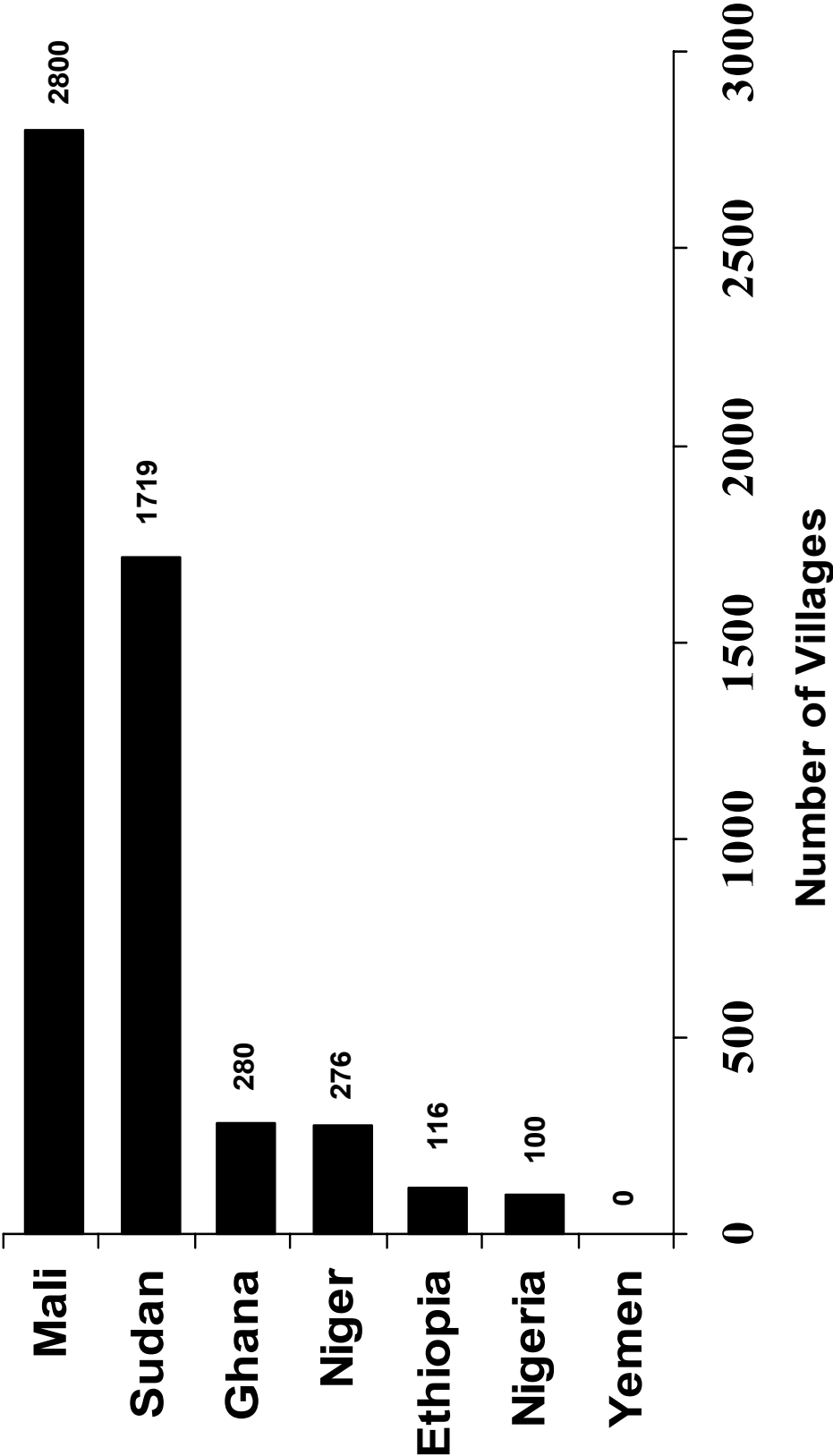
2001



# Number of Villages Receiving Hygiene Education

Carter Center-Assisted Trachoma Control Programs

2002 Targets



### **Monitoring, Evaluation and Surveillance**

*Presented by Dr. James Zingesser, technical director, Trachoma Control Program, The Carter Center, Atlanta, USA.*

One of the great successes of the Guinea Worm Eradication Program (GWEP) has been to demonstrate that routine, focused, monthly, village-based surveillance systems can produce timely and reliable data for use by ministries of health on an ongoing basis. All Guinea worm-endemic countries have developed national surveillance systems based on seven indicators, chosen for their simplicity and usefulness in decision-making and advocacy. Because trachoma control programs (TCPs) work in similar environments to the GWEP and need to collect similar data for decision making, it is useful and encouraging to build on the accomplishments of the GWEP.

At the first annual program review of Carter Center-supported trachoma control programs, held in Atlanta in 2000, participants discussed standardizing indicators for surveillance or monitoring and evaluation of trachoma control programs. The following is excerpted from that meeting:

Routine surveillance is but one part of the health information (surveillance) system which ministries may use for program management. Surveillance systems also include numerous other monitoring, surveillance and evaluation activities. Some data, such as surgical logs, will be detailed daily records kept and used at the local level, which may be periodically reviewed as part of special studies. Other data, such as follow-up KAP surveys, may be done regionally every few years. Operational research, such as cost-effectiveness studies, may be very useful for program planning and evaluation. These special studies require detailed data gathering and validity checks, and are very time-consuming and expensive. Routine surveillance, on the other hand, must be much less detailed and costly in order to be practical, timely and useful for program management. Routine surveillance data give a snapshot image of the program at a given moment. Trachoma surveillance indicators, like the Guinea worm indicators, should be simple, reliable and flexible. As programs mature, indicators will also evolve.

At that program review and in subsequent meetings, a set of indicators for field testing and evaluation was developed and revised. The ministries of health in Niger, Ghana, Sudan and Ethiopia have begun using these, or a similar set of indicators, in their trachoma control programs. Each country program has collected baseline data, presented as line listings, and has regularly updated their line listing data. The model line listing has the following format:

District	%TFTI	%TT	Pop.	Health Ed	% Clean Faces	% Houses with toilets/latrines	Clean Water Source	Oc. Tet. available	Eye surgery available

National TCPs have found these indicators and the line listing format to be very useful in program organization, assessment, reporting, advocacy and ongoing decision-making.

In August 2001, in a meeting held in Khartoum, the Sudan TCP took on the challenge of pulling all the pieces together to design a comprehensive monitoring and evaluation system. Participants in the Sudan meeting used their extensive knowledge and experience gained from the onchocerciasis control and other public health programs to develop the following structure for its surveillance, monitoring and evaluation activities:

- I. **Triennial survey** using standard statistical sampling methods to measure prevalence of disease and behavioral change (TT and TF/TI prevalence [i.e., eye exams by trained observers], and sociological survey [e.g., KAP survey]). This survey will assess whether villages are receiving *quality health education* and will include an environmental assessment of hygiene and fly control.
- II. **Annual evaluation** not based on a randomized sample, but focusing on suspected problem areas, using external evaluators, trained eye examiners and allowing regional and sub-regional coordinators to evaluate areas other than their own. This survey will focus on practical questions for the program and will take advantage of opportunities for training and advocacy. This evaluation will also assess *quality of health education* and will include an environmental assessment of hygiene and fly control.
- III. **Monthly monitoring** similar to, and integrated with, Guinea worm eradication program surveillance, where the diseases are co-endemic. Regional, sub-regional and district supervisors will visit villages and district program offices. Each contact with supervisees will include surveillance, monitoring and supervision. Supervision will include providing feedback to the supervisee as well as training, as needed. Integration with similar community-based programs would be encouraged.
- IV. **Special studies** will also be an important part of the overall evaluation structure. One example would be having a student abstract data from TT surgical logs and visiting a random sample of surgical patients, collecting data for analysis.

This is a public health model of program evaluation, as opposed to an academic model. That is to say, that the evaluation will be planned so as to exploit every opportunity to push the program forward, and not to stop or slow activities for the sake of the evaluation and its analysis. The Sudan TCP will attempt to solve problems as they are detected, and at the level at which they are detected in the evaluation process. In addition, supervision will be an integral part of the process, including:

1. one-on-one observation of activities
2. careful listening and discussion with supervisees, and
3. decision-making (problem solving) on the spot.

By linking supervision to monitoring in this way, so-called “vague indicators” such as *health education done in the village* will be useful. The assessment of the quality of an observed health education session (e.g., number and type of persons in the audience, clarity and content of presentation) will be done on site, and suggestions for improvement made immediately after the session.

Dr. Zingeser presented the set of indicators used by Carter Center-partner TCPs, and the Sudan model for surveillance, monitoring and evaluation at the landmark WHO-sponsored *Meeting for the Development of Guidelines for the Assessment of the Elimination of Blinding Trachoma*, in Geneva, 8-9 November 2001. The cumulative experience of Carter Center partner TCPs was extremely important in the deliberations to develop routine monitoring and evaluation. Of the country programs represented in the Geneva meeting, the only ones which were actually collecting and using routine data were the Carter Center-assisted TCPs.

One of the most important products of the Geneva meeting was a set of *core indicators* which will be presented to GET2020 Alliance members as the foundation on which national programs may build monitoring and evaluation of their programs. For the most part, the participants agreed with the indicators already being used by Carter Center-assisted programs. However, they suggested some significant improvements. Several of the expert trachoma ophthalmologists argued strongly for the following changes:

1. Do not use conjunctivitis as a surrogate for flipping lids to assess TF – have nurses or other health workers flip lids quarterly.
2. Use TF instead of TF/TI (especially in persons > 9 year old) because there is an over-diagnosis of TI, especially in adults.
3. Measure TF in children 1-9 years old (inclusive) instead of 1-10 years old.
4. Measure TT in both men and women 40 years of age and older.

Taking the improvements recommended in the Geneva meeting into consideration, the following set of TCP indicators was proposed for use by all partner trachoma control programs in the program review:

### **Outcome (epidemiological) indicators**

1. % men and women  $\geq 40$  years old with uncorrected TT
2. % children 1-9 years old with TF

### **Process (operational) indicators**

**S**

3. % **target persons** who have received surgery

**A**

4. % **target persons** treated with antibiotics (azithromycin and tetracycline)

**F**

5. % **target villages** having received health education
6. % children 1-9 years old with clean faces (no ocular or nasal discharge)

**E**

7. % endemic villages with most (>50%) households having a toilet in house or covered latrine
8. % endemic villages with most (>50%) households having a safe water source in the village, or within 1 km (30 minutes travel time)

## **Fly Control**

*Presented by Mr. Paul Emerson, U.K. Medical Research Council, The Gambia.*

### **Flies and trachoma**

Domestic flies act as mechanical vectors of many diseases, and are believed to act as mechanical vectors for the spread of trachoma. Their involvement in trachoma transmission, however, has been difficult to prove. This is due, in part, to the fact that flies are never the sole transmission route of a disease. Consequently there is scanty evidence that fly control will have a public health benefit. Fly control itself is very difficult, as flies breed very rapidly, exploit all breeding sites, and fly to new areas if they need to.

The flies thought to be involved in the spread of trachoma have an appetite for moisture from corners of human eyes. Transmission of trachoma is believed to occur when the feet of the fly touch the eye of a chlamydia-infected individual whereupon they pick up the bacterium and carry it to the eye of someone who is not yet infected. Transmission of disease depends upon weather conditions, the number and species of flies in the environment, and the accessibility of infectious material.

### **Trachoma transmission studies in The Gambia**

A pilot study was conducted in rural Gambia, in which two pairs of villages were followed for three months. One village from each pair received insecticide spraying to control the flies and the other had no intervention. Trachoma surveys were taken at baseline and in the third month.

The study found that in the absence of domestic flies there was a 61% reduction in community prevalence of active trachoma (defined as the presence of TF, TI or both). Additionally, there was a 23% reduction in the number of days that children had diarrhea in villages sprayed for fly control. This pilot study was limited by the relatively small number of participants, that it was not conducted over all seasons, and that there was no external validation of trachoma grading.

Descriptive entomological studies in rural Gambia implicated *Musca sorbens* as an important vector of trachoma. It was found to be responsible for 90% of fly-eye contacts, yet only accounted for 10% of the flies caught with other methods. Breeding media choice experiments showed that *Musca sorbens* breeds in dog, calf, cow and human feces, but that it prefers human feces. Gravid females come to the feces and start laying eggs as soon as it is exposed. Interestingly, *Musca sorbens* is attracted to feces lying on the ground, but was not caught emerging from pit latrines. This finding suggests that *Musca sorbens* can be controlled through the use of latrines.

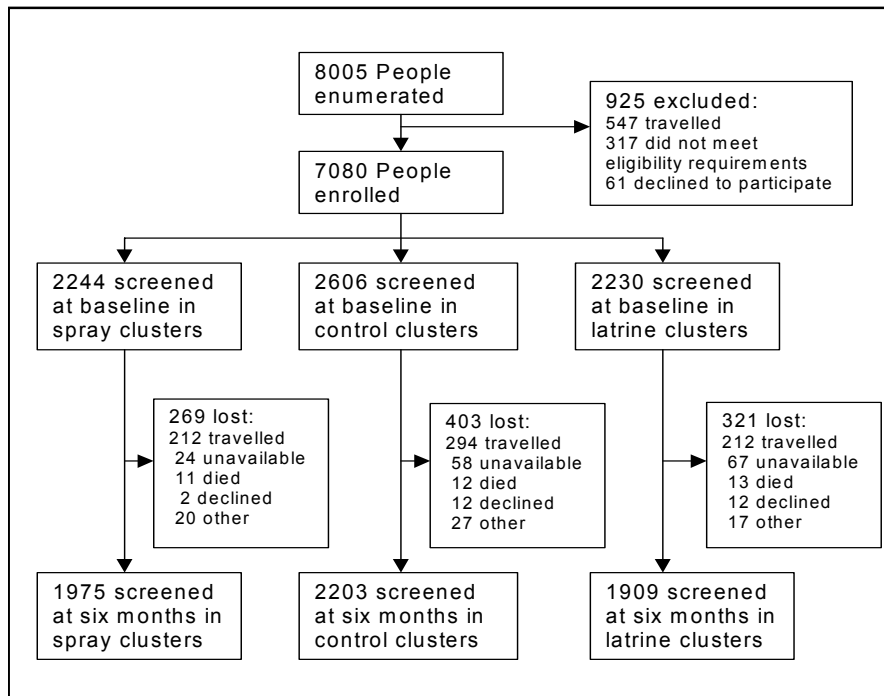
### **The Flies and Eyes Study**

The *Flies and Eyes Study* was designed to confirm the findings of the pilot study and evaluate latrine provision as a sustainable method of fly control. It was conducted over all seasons, had external validation of trachoma grading, and a larger sample size. Great pains were taken to ensure state and regional knowledge of the project.



The *Flies and Eyes Study* was a community-based, cluster-randomized trial with three “arms” designed to detect a 35% reduction in trachoma (figure 1). Its three arms were: (1) insecticide spraying with permethrin, (2) provision of pit latrines, and (3) no intervention. Seven sets of three clusters were required. Outcome measures were: clinical assessment of trachoma at baseline and at six months, monitoring of fly populations, monitoring of fly-eye contacts, and monitoring latrine uptake. After the six month study period, all participating villages received latrines. More than 7,000 villagers were screened for trachoma, and all trichiasis patients were referred for corrective surgery. The villages will soon have health education as well.

Figure 1. Trial Profile



Over 6,000 participants completed the study. Baseline screening suggested that the prevalence of active trachoma was lower than expected, thus reducing the power of the study. Active trachoma was more commonly seen in younger age groups, particularly under 10 years old (figure 2). Youth was the only predictor of active trachoma at baseline.

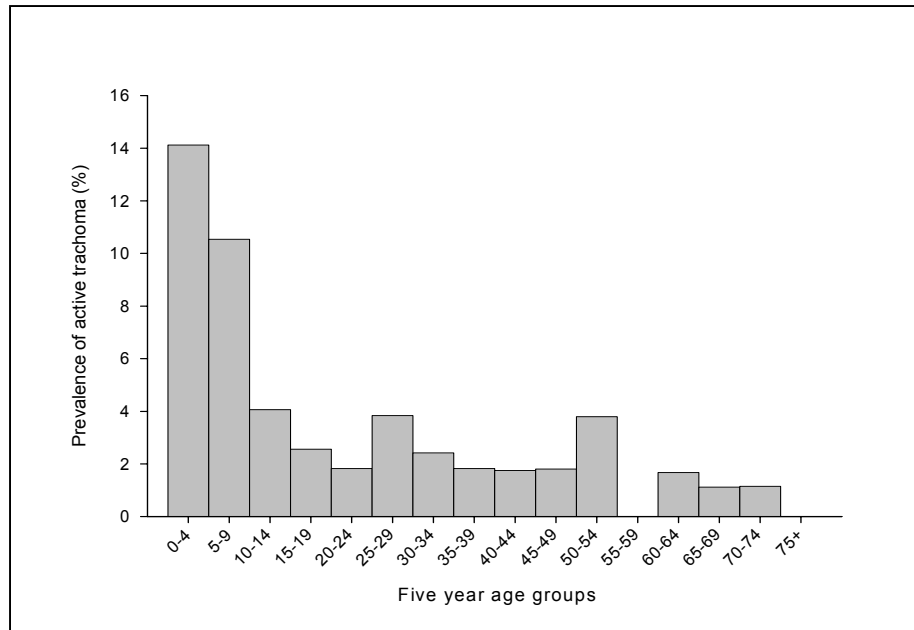


Figure 2. Prevalence of active trachoma by 5-year age group

#### Follow-up results of insecticide spraying

In the study villages, spraying with permethrin reduced the number of *Musca sorbens* flies caught from children's eyes by 88% ( $p < 0.001$ ). Permethrin spraying was also associated with a 56% reduction in the community prevalence of trachoma, compared to control villages ( $p = 0.01$ ).

#### Follow-up results of latrine provision

Latrine provision reduced the number of *Musca sorbens* flies caught from children's eyes by 30% ( $p = 0.04$ ) compared to controls. The association of latrine provision with a reduction in the community prevalence of trachoma was weaker: 30% ( $p = 0.21$ ) compared to controls. This may be due to the low prevalence of active trachoma in the study population.

#### Discussion

Fly control is warranted in trachoma-endemic areas where flies are a problem. Control with insecticide is effective, but not particularly feasible as spraying machines require constant upkeep. Fly traps are considered unlikely to work because an effective trap has not yet been developed. Therefore, latrine provision is the preferred intervention for fly control. However, latrine construction and upkeep must be taken into consideration for the intervention to be effective. It has been found that communal latrines only work effectively when someone takes responsibility for their upkeep. Experience in The Gambia suggests that community toilets are not a useful tool; even the sharing of one latrine per compound has been shown to create upkeep problems. In this study, one latrine was provided per household.

Latrine construction was done using local artisans from the Department of Community Development to ensure that the design was appropriate for local conditions. The total cost per latrine (including labor) was approximately US\$17.35. Materials required per latrine were: 2 bags of cement, 5 ½ wheelbarrows of sand, 6 meters of 6mm diameter steel rod, and binding

wire. According to the Department of Community Development, these latrines are designed to have an 8-year lifespan. The household latrines built in this study were popular and valued by the communities.

In conclusion, latrine provision is warranted in trachoma-endemic areas where there is a lack of sanitation. A benefit of this intervention is that they are inexpensive to build. They are considered a core element of ‘health hardware,’ above and beyond trachoma control. It is recommended that latrine provision is not simply done in isolation, but as an integral component of the SAFE strategy.

For the most part, these indicators have incorporated the excellent suggestions made by the WHO group of experts. The most significant difference between these indicators and those which were proposed in Geneva is the use of *targets* as the basis for measuring progress. In the early years of trachoma control programs, it is very difficult to assess the actual burden of active trachoma or trichiasis. By setting *annual treatment objectives*, programs can have realistic targets each year and work to achieve them. Eventually, a reliable measure of the prevalence of trachoma will allow the programs to target their *ultimate treatment goals*, and program managers will measure their progress toward truly controlling blinding trachoma in the world. The process of developing better monitoring and evaluation tools will help us all to get there.

## Azithromycin dosing by height

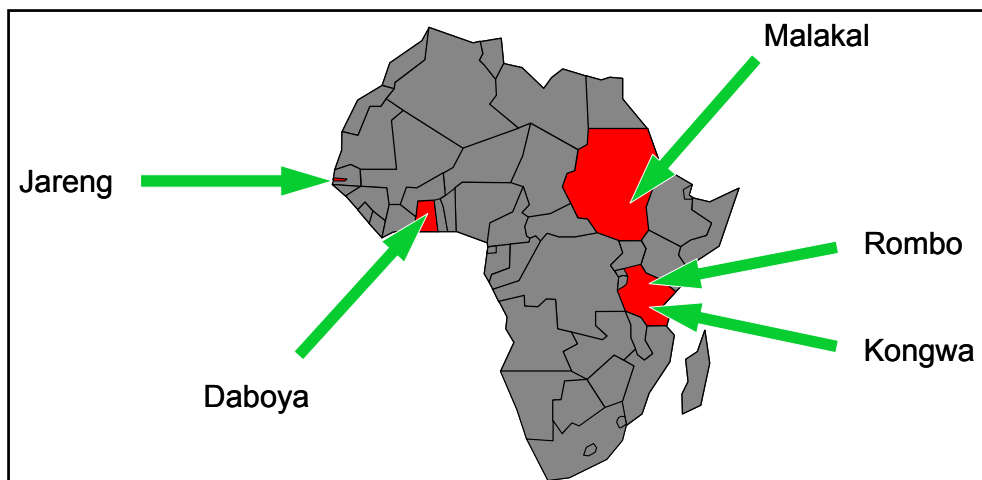
*Presented by Dr. Anthony Solomon, London School of Hygiene and Tropical Medicine.*

This project was a collaborative effort of researchers working in five areas in four countries. In each country, the national trachoma control program wanted to develop a simple model for dosing oral azithromycin based on height. The co-authors of this collaborative report are Dr.

Solomon	Beatriz Muñoz	James Zingeser	
Rachel Barwick	Matthew Burton	Allen Foster	Robin Bailey
David Mabey	Sheila West		

In-country research was made possible through the efforts of:

Peter Abugri	Joe Akudibillah	Mamoun Homeida	Patrick Massae	Harran Mkocha
(Ghana)	(Ghana)	(Sudan)	(Tanzania)	(Tanzania)



Locations of height:weight research projects

The researchers asked three questions:

1. Can height predict weight?
2. Can height predict an acceptable dose of azithromycin tablets or suspension?
3. Could a single model of height-based dosing be applicable in more than one setting?

### *Methods*

A total of 5,558 children aged 6 months to 15 years were weighed and measured. The dosage determined by height was compared with an ideal dose by weight of 20mg/kg, with tolerance limits of 15-30mg/kg. Doses given were based on tablets or milliliters of azithromycin given, assuming the azithromycin would be available as 40mg/mL suspension, or 250mg tablets which could be reliably broken in half. It was assumed that children under 1 year (or 60cm) would be weighed, not measured, for dosing. The data collected in the five locations were analyzed by Ms. Muñoz at Johns Hopkins University to determine the model which best fit the observations in the field.

*Results*

In the study population, height was a very good predictor of weight, and hence dosage. Age and gender accounted for little of the remaining variance in the final model. The data analysis suggests that height **can** predict weight, and height **can** predict an acceptable dose of azithromycin tablets or suspension. Finally, a single model of height-based dosing was found to be applicable in all of the research settings.

cm	dose
167	4 tabs
157	3½ tabs
146	3 tabs
134	2½ tabs
120	2 tabs
100	1½ tabs
71	1 tab
	0 tabs
	(susp)

In comparing data from one location with another, the children in Kongwa were slightly heavier; children in Malakal slightly lighter than the reference group. The final height-based dosing scale was then compared with dosing the same children by weight, and the results for more than 97% of the children were within the tolerance limits. Most problems in dosing were found in children from 1 to 2 years old. This group of patients should be measured carefully in treatment campaigns.

## **Ethiopia Public Health Training Initiative**

*Presented by Ms. Laura Lester, EPHTI Program Officer, The Carter Center*

### **Background**

The Ethiopia Public Health Training Initiative (EPHTI) began in the years 1993-4 as a result of a series of conversations between Ethiopian Prime Minister Meles Zenawi and former U.S. President Jimmy Carter on the state of public health in Ethiopia. There were not enough people trained to staff the necessary number of health centers in rural areas, nor enough programs in place in the universities to train people to work in these areas. The government decided to develop four new college level programs and to train health center teams, producing 600 graduates per year who would work in these health centers. Dr. Dennis Carlson, consultant to The Carter Center, assisted the Ethiopian effort to train public health workers.

### **Major Objectives**

The two main objectives of the Ethiopia Public Health Training Initiative are to strengthen the teaching capacities of the staff and to create curriculum materials specifically designed to meet the needs of health center teams.

The goal of The Carter Center intervention is that the infrastructure will develop and become self-sustaining within 10 years.

### **Training**

Senior international consultants train health center teams comprised of:

- health officers
- public health nurses
- environmental health sanitarians
- lab technicians
- birth attendants

### **Workshops**

There have been eight major workshops held since 1997, each lasting 1-2 weeks. “Mini-workshops” are also held, which last 3-5 days. Health center teams and university staff meet to design modules and write lecture notes. Twenty modules are slated for development. Topics include: malaria, pneumonia, HIV/AIDS, tuberculosis and trachoma. The trachoma control module was drafted by EPHTI teams in Ethiopia, with assistance from experts in the U.K. and The Carter Center, Atlanta.

### **Evolution of Training Modules**

First, topics are identified and assigned to a specific college team. The college team meets and drafts a proposal which is then reviewed by EPHTI consultants. The module’s final test is done in the classroom, where additional changes are made.

### **Training Modules and Lecture Notes**

Four modules are being used in the universities right now:

- Protein-Energy Malnutrition

- Malaria
- Diarrhea
- Pneumonia

Eleven modules are currently being developed. There are fourteen completed sets of lecture notes, and 26 more are in development.

The EPHTI modules and lecture notes are developed for Ethiopians by Ethiopians, and are not intended to be universal in scope. However, the EPHTI will share modules and lecture material with other ministries of health and health care trainers on request. More importantly, the unique process developed by the EPHTI can be replicated for use in other countries to develop country-specific training modules and materials.

## Using Quicken to Manage Drug Distribution

Presented by Ms. Dana Lee, senior business manager, Global 2000/The Carter Center.

### Introduction

Quicken® is an accounting software package used by many households and small businesses. It can be adapted to track the receipt, distribution and transfer of drugs. Quicken is inexpensive, can be purchased, ready to use, off the shelf or by mail, and is easy to learn. For the past five years, the Global 2000 River Blindness Program has used Quicken to track ivermectin (Mectizan™ donated by Merck & Co. Inc.) tablets for onchocerciasis control. In that program, ivermectin is efficiently tracked from the time it is received in-country until it is turned over to district, or village, health authorities for distribution. Quicken can be programmed to provide pre-formatted reports to facilitate stock management. The Carter Center has not adapted this software to track azithromycin, but the successful use of Quicken in the onchocerciasis control program suggests that it is a good option for use in trachoma control programs.

### Main advantages of using Quicken:

- Signed written documents can be produced for each transaction
- Simple backup of data files
- Loans and repayments handled on a national level (rather than project level)
- Consistency in format
- Simple balance monitoring

### Key accounting terms used in Quicken to track ivermectin tablets as adapted by the Global 2000 River Blindness Program

- *Currency*: currency, in this case, is ivermectin tablets
- *Increases*: the number of tablets received from the donor
- *Decreases*: the number of tablets distributed damaged, expired, stolen or lost
- *Advances*: tablets advanced from the National Office to the Project Office (before you know the percentage damaged or expired)
- *Liabilities*: loans from other NGO's that are received in donations

### Quicken Functions

- *Account List*: shows ending balance on all of the accounts
- *Register*: shows all of the transactions affecting the tablet balances
- *Categories*: preset by the finance officers to help classify the options for the transactions

### Pre-formatted Reports

- *Inventory Balances Report*: display the balances for each account
- *Monthly Activity Report*
- *Monthly Summary Report*
- *Year-to-Date Summary Report*



## APPENDIX I: The Disease

Trachoma is the world's leading cause of preventable blindness. The World Health Organization estimates that 6 million people are blind due to trachoma, most of whom are women, and another 540 million – almost 10 percent of the world's population – are at risk of blindness or severe visual impairment. Trachoma is caused by repeated infections of the eyelids by the bacterium *Chlamydia trachomatis*, and can be prevented through simple hygiene. Most cases occur in rural, arid areas of developing countries, such as the Sahelian region of Africa, where access to clean water is limited.

The early, acute stage of the disease is called *inflammatory trachoma*, and is most common among children. Women are repeatedly exposed to inflammatory trachoma in their role as primary caretakers of children. It is therefore not surprising to find that women develop chronic trachoma two to three times more often than men. Trachoma is transmitted through discharge from the eyes and nose of infected individuals, which may be passed to others on hands, towels and clothing, or by flies, which are attracted to ocular and nasal discharges. As a trachoma patient's eyelids are repeatedly infected with chlamydia, subsequent scarring of the conjunctiva deforms the eyelid margin, resulting in eyelashes turning inward and rubbing against the cornea. This condition, called *trichiasis*, causes pain and scarring of the cornea, which eventually leads to blindness.

Recent developments have brought new hope that we can effectively control this disease. In 1987, eye care experts and the World Health Organization (WHO) developed a simplified trachoma grading scale, which facilitated and standardized the diagnosis and identification of all stages of trachoma. In 1996, WHO established the GET2020 Alliance, which brings international non-governmental development organizations, donors and researchers together to work collectively in controlling trachoma. In addition, with support from the Edna McConnell Clark Foundation (EMCF) and WHO, the *SAFE strategy* was created to control trachoma through community-based interventions.

Another important development was the finding that the oral antibiotic *azithromycin*, taken once or twice annually, is as effective in preventing chronic trachoma as six weeks of daily treatment with tetracycline eye ointment, the previously recommended therapy. To assist ministries of health in implementing the "A" component of the SAFE strategy, the International Trachoma Initiative (ITI), formed through the collaboration of EMCF and Pfizer Inc, is managing a significant donation of Zithromax, Pfizer's brand of azithromycin, for treatment of trachoma in selected developing countries.

## APPENDIX II: Program Review Agenda

**Monday, March 11, 2002**

8:00 - 8:30 Welcome and introductory remarks Dr. James Zingeser

### **F & E**

8:30 - 9:15 Ghana Presentation Dr. Maria Hagan

9:15 - 9:30 Mali Presentation Dr. Doulaye Sacko

9:30 - 9:45 Niger Presentation Dr. Abdou Amza

9:45 - 10:00 Sudan Presentation Mr. Mark Pelletier  
Ms. Kelly Callahan

10:00 - 10:15 Coffee Break/Ivan Allen Foyer

10:15 - 10:30 Ethiopia Presentation Mr. Teshome Gebre

10:30 - 10:45 Nigeria Presentation Dr. Nimzing Jip

10:45 - 12:15 Discussions/recommendations

12:15 - 1:30 Lunch in Ivan Allen Foyer  
(Group photo)

### **Special Sessions**

1:30 - 3:00 Fly Control Mr. Paul Emerson  
Dr. James Zingeser

3:00 - 3:15 Coffee Break/Ivan Allen Foyer

3:15 - 5:00 Monitoring and Evaluation/Surveillance Dr. James Zingeser

## Tuesday, March 12

### S & A

8:00 - 8:40	Ghana Presentation	Dr. Maria Hagan
8:40 - 9:00	Mali Presentation	Dr. Doulaye Sacko
9:00 - 9:20	Niger Presentation	Dr. Abdou Amza
9:20 - 9:40	Sudan Presentation	Ms. Kelly Callahan Prof. M. Homeida
9:40 – 10:00	Ethiopia Presentation	Mr. Teshome Gebre
10:00 – 10:15	<u>Coffee Break/Ivan Allen Foyer</u>	
10:15 - 10:35	Nigeria Presentation	Dr. Nimzing Jip
10:35 – 12:00	Discussions/recommendations	
12:00 – 1:00	<u>Lunch in Ivan Allen Foyer</u>	

### Special Sessions

1:00 – 2:00	Using Quicken to Manage Tablet Distribution	Ms. Dana Lee
	Trachoma Module - Ethiopian Public Health Training Initiative	Ms. Laura Lester
2:00 – 3:00	Data for decision making	Dr. James Zingeser
3:00 - 3:15	<u>Coffee Break/Ivan Allen Foyer</u>	
3:15 – 5:00	General conclusions/reflections	Dr. Donald Hopkins

### **APPENDIX III: List of Participants**

#### **Ethiopia**

Mr. Teshome Gebre (Carter Center)

#### **Ghana**

Dr. Maria Hagan

Dr. Daniel Yayemain

Mr. Eric Dumakor (Carter Center)

Mr. Emmanuel Pupilampu (Carter Center)

#### **Mali**

Dr. Doulaye Sacko

Dr. Mamadou Bathily (Carter Center)

#### **Niger**

Dr. Abdou Amza

Mr. Salissou Kane (Carter Center)

#### **Nigeria**

Dr. Emmanuel Miri (Carter Center)

Dr. Nimzing Jip (Carter Center)

#### **Sudan**

Prof. Mamoun Homeida

Dr. Bellario Ahoy Ngong

Ms. Kelly Callahan (Carter Center)

Dr. Jeremiah Ngondi (Carter Center)

Mr. Mark Pelletier (Carter Center)

#### **The Carter Center**

Dr. Donald Hopkins

Dr. James Zingeser

Ms. Misrak Makonnen

Ms. Dana Lee

Ms. Nicole Kruse

Mr. Stan Miano

Ms. Shandal Sullivan

Mr. Craig Withers

Ms. Laura Lester

Ms. Jennifer Moore

Ms. Robin Poovey

Dr. Frank Richards

Dr. Ernesto Ruiz-Tiben

Ms. Wanjira Mathai

Ms. Sarah Hodgson

Ms. Stacy Taylor

Mr. Marc Tewari

Mrs. Nwando Diallo

#### **Conrad N. Hilton Foundation**

Ms. Dyanne Hayes

Ms. Rose Arnold

#### **Lions Clubs International Foundation**

Ms. Rebecca Teel Daou

#### **US Centers for Disease Control and Prevention**

Dr. Stephen Blount

Mr. Ross Cox

Dr. Mamadou Diallo

Dr. Ellen Dotson

Dr. Robert Wirtz

#### **Emory University**

Dr. Josef Amann

#### **Helen Keller Worldwide**

Ms. Lisa Tapert

Ms. Lorena Morales

#### **International Trachoma Initiative**

Dr. Joseph Cook

Dr. Eric Mouzin

#### **Medical Research Council**

Mr. Paul Emerson

#### **Pfizer Inc**

Ms. Heather Lauver

#### **World Health Organization**

Dr. Silvio Paolo Mariotti

#### **World Vision**

Dr. Joseph Riverson

#### **London School of Hygiene and Tropical Medicine**

Dr. Anthony Solomon